

*December* 1942

# TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



# technology review

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# Thousands of Combinations

*Are You Using the Best One?*

The grinding wheel has a job to do. Out of an army of 100,000 grinding wheels (combinations) you can pick one that can best do your job — find it.

It may mean more production from your present grinders.

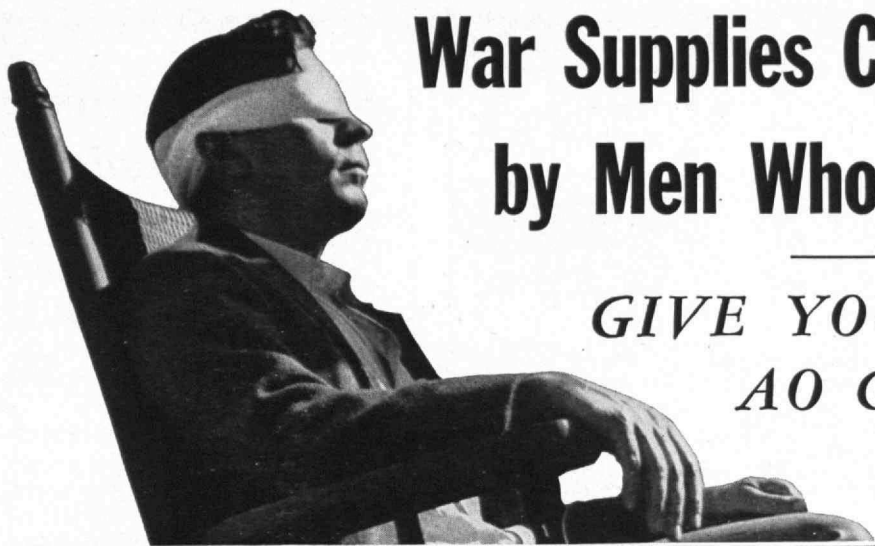
It may mean another tank for Uncle Sam or another fighting plane, or bomber.

The best advice: To get the largest possible production from your grinders, call in a Norton Abrasive Engineer.



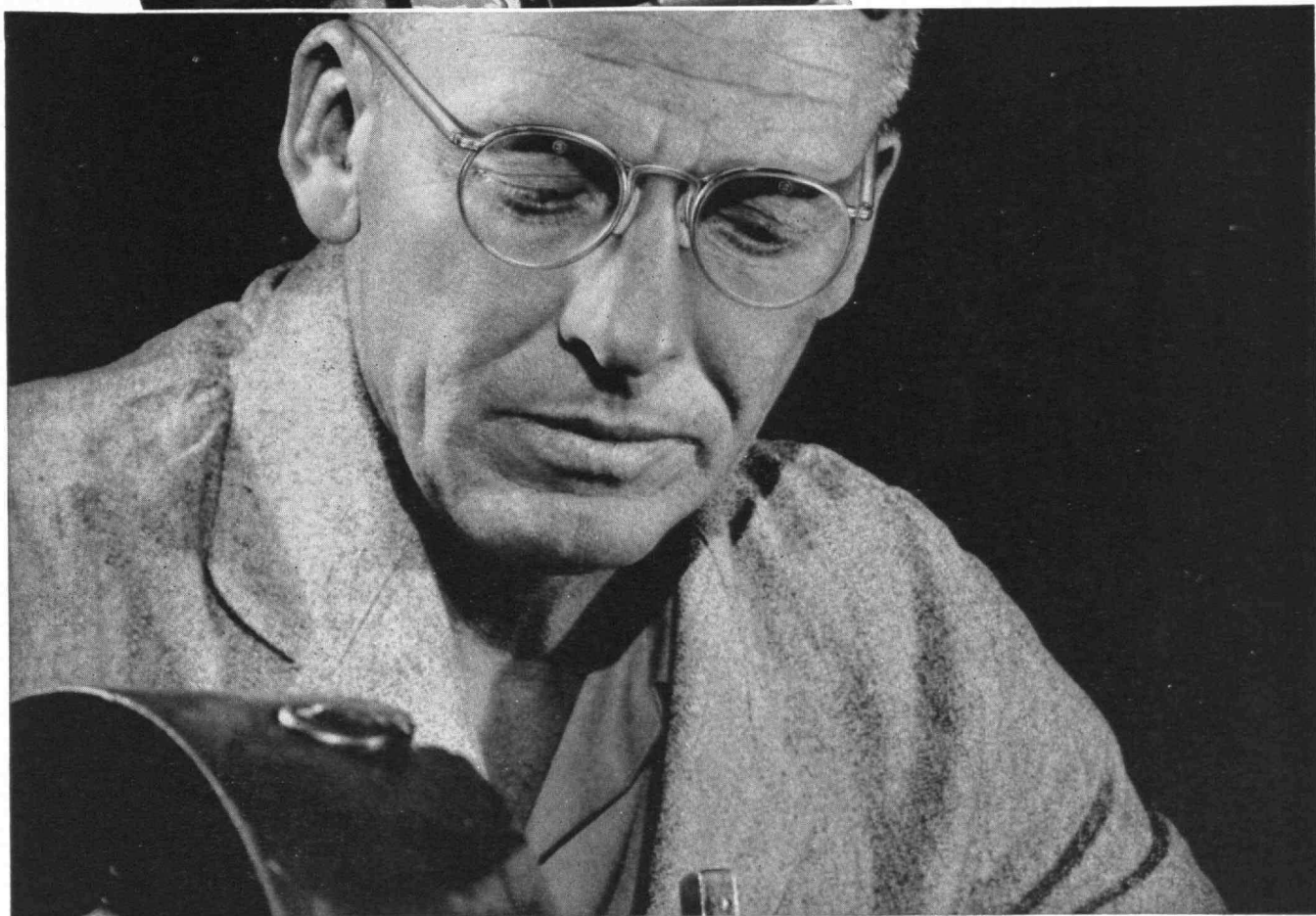
» **NORTON ABRASIVES** «

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# War Supplies Cannot Be Made by Men Who Cannot See

*GIVE YOUR WORKERS  
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Last year, eye accidents took from the War Production Program, 9,455,000 man-days . . . enough time to build 600 bombers, or 15 destroyers, or 8,000 light tanks.

A flying chip will drop a worker from your ranks as quickly as an enemy bullet and upset production rates for a machine, a section, a department. That is *one* reason it more than pays to give all your skilled workers AO Goggles.

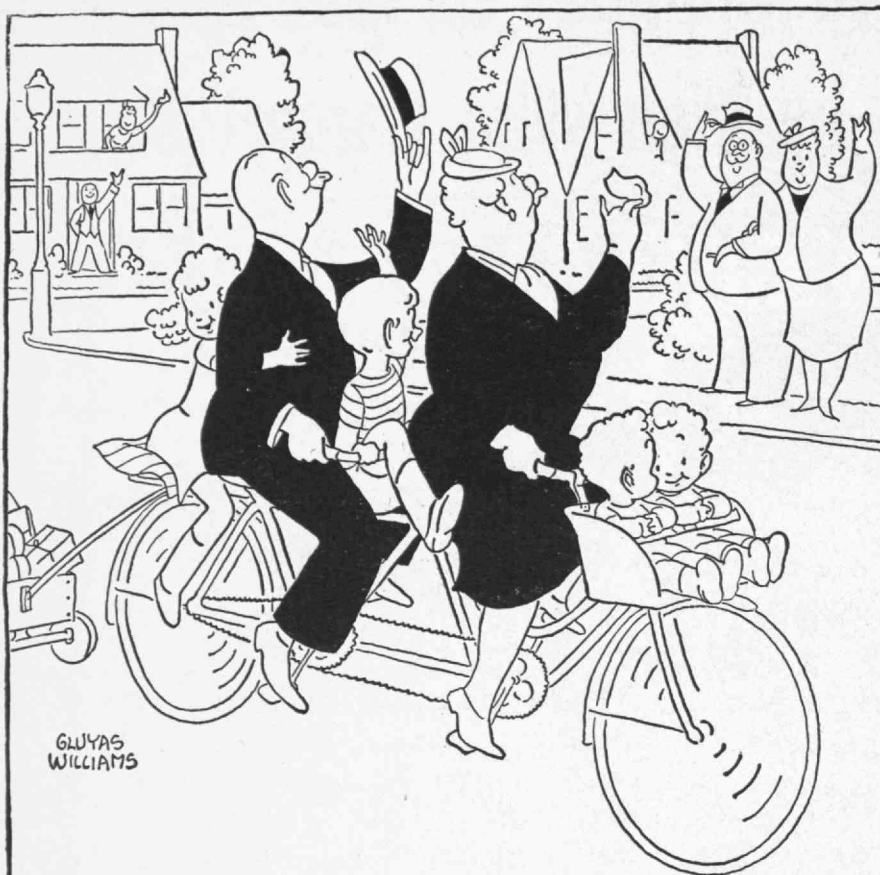
American Optical Company, manufacturers for more than 100 years of products to aid and protect vision, offers you a complete line of goggles to meet every type of industrial eye hazard. AO Goggles are comfortable to wear, lightweight and ventilated. Equipped with Super Armorplate lenses, AO Goggles offer maximum possible resistance to impact. Have your Safety Director call our nearest Branch Office, today.

American  Optical  
COMPANY  
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## Wartime readjustments . . . #2



GLUYAS  
WILLIAMS

### THE GIBSONS GET AROUND RUBBER RATIONING — AND GET AROUND!

**T**HE American sense of humor — and American ingenuity — make our many wartime adjustments easier than they otherwise would be.

Out of the whole process — learning to balance on a bike again and grow our own vegetables and live more simply — comes a new perspective. Non-essentials show up for what they are, and *big* things take their place at the head of the list.

For most of us, putting first things *first* means paying taxes, buying War Bonds and adding life insurance. Certainly life insurance has a special service to render in these tense times.

It's the quickest, cheapest, *safest* way to provide protection for families who now need protection more than ever. Its purchase helps to curb inflation, and contributes to the war effort because much of your premium

dollar is promptly re-invested in Government bonds.

And it's one commitment that *helps finance itself* when premium payments come hard. How? Ask any New England Mutual *Career Underwriter*.

#### Here are some of the advantages of a New England Mutual contract

1. **DIVIDENDS** begin at the end of the *first* year.
2. **CASH VALUES** begin at the end of the *second* year.
3. A **PREMIUM LOAN** is available toward payment of the *second* annual premium.
4. **CONVERSION** to Retirement Income or higher premium plans requires the payment of difference in reserves only.

## How to balance bike or budget

Both take practice. Both bring tumbles — at first. Both are easier with a little expert coaching.

Even if you're a *born* bike-rider, you can probably use some real help with the budget adjustments imposed by war.

Now is a good time to turn to the men listed below. They're alumni of your college and they talk your language. They are also trained representatives of the First Mutual Life Insurance Company Chartered in America.

Out of their experience you'll get *practical*, constructive suggestions. They'll help you make the most of your limited life insurance dollars — help you protect your present policies with premium loans if necessary.

Check your protection *now when you need it most*. If none of these men is near you, you can get similar service at the New England Mutual office in your city.

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Salem

ARTHUR C. KENISON, '19  
Boston

BLAYLOCK ATHERTON, '24  
Nashua

We're making readjustments, too. With some 15% of our field force now in military service, we have real opportunities for able men in several cities.

If you're interested in a satisfying career where you can be your own boss — and if your draft status is reasonably assured — we'd like to talk things over. Or perhaps you have a friend who might appreciate the tip.

In either case, just write to Wm. Eugene Hays (Stanford '26), 501 Boylston Street, Boston, Mass., for information. There's no obligation, of course.

## New England Mutual Life Insurance Company of Boston

George Willard Smith, President

Agencies in Principal Cities Coast to Coast

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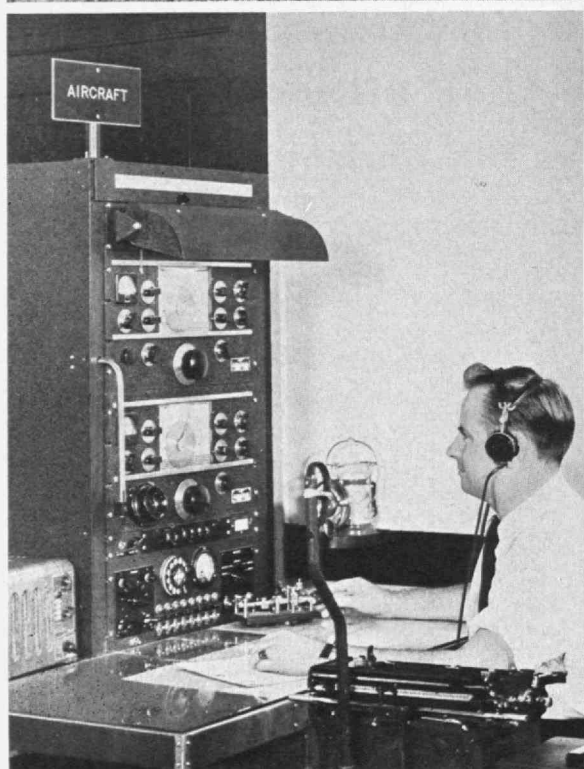


# **WAR needs the wires this Christmas**

**War can't wait—not even for Christmas.  
So please don't make Long Distance  
calls to war-busy centers this Christmas  
unless they're vital... BELL TELEPHONE SYSTEM**







PHOTOS COURTESY PAN AMERICAN AIRWAYS SYSTEM

Upper photo: Pan American Strato-Clippers

Lower photo: A Pan American radio installation using National Receivers

**I**t is not too much to say that Pan American Airways has invented the technique of trans-oceanic air transport; a technique based on superb skill, meticulous maintenance, and thoroughly reliable equipment.

National and Pan American Airways have never been strangers, but we are particularly proud that year by year Pan American has turned increasingly to National communication equipment.

**NATIONAL COMPANY, INC.**  
**MALDEN, MASSACHUSETTS**

“We may confidently depend on science to provide the foundation for a better social structure, if we can prevail upon ourselves to build thereon in a different frame of mind.”

ARTHUR D. LITTLE

(From the *Industrial Bulletin*, December, 1937)

**Arthur D. Little, Inc.**

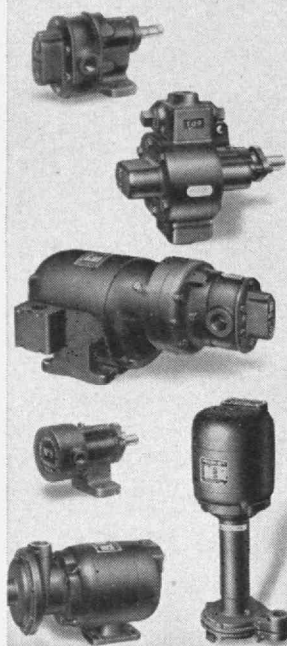
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ON PUMP RELIABILITY  
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## THE TABULAR VIEW

**Three Hundredth.** — Christmas, 1642, saw the birth of one of the few great minds of all time, whose analytical capacity and creative strength were destined to give new and lasting direction to human thought. Writing of Sir Isaac Newton in this tercentenary month, GEORGE R. HARRISON, Dean of Science at the Institute, emphasizes in a thoughtful essay (page 73) the youthful age at which Newton wrought out the ideas which remain fundamental to the science and technology on which our civilization rests. Himself a physicist of note, Dr. Harrison, whose work in spectroscopy is of fundamental value, is in addition a skilled and vigorous writer.

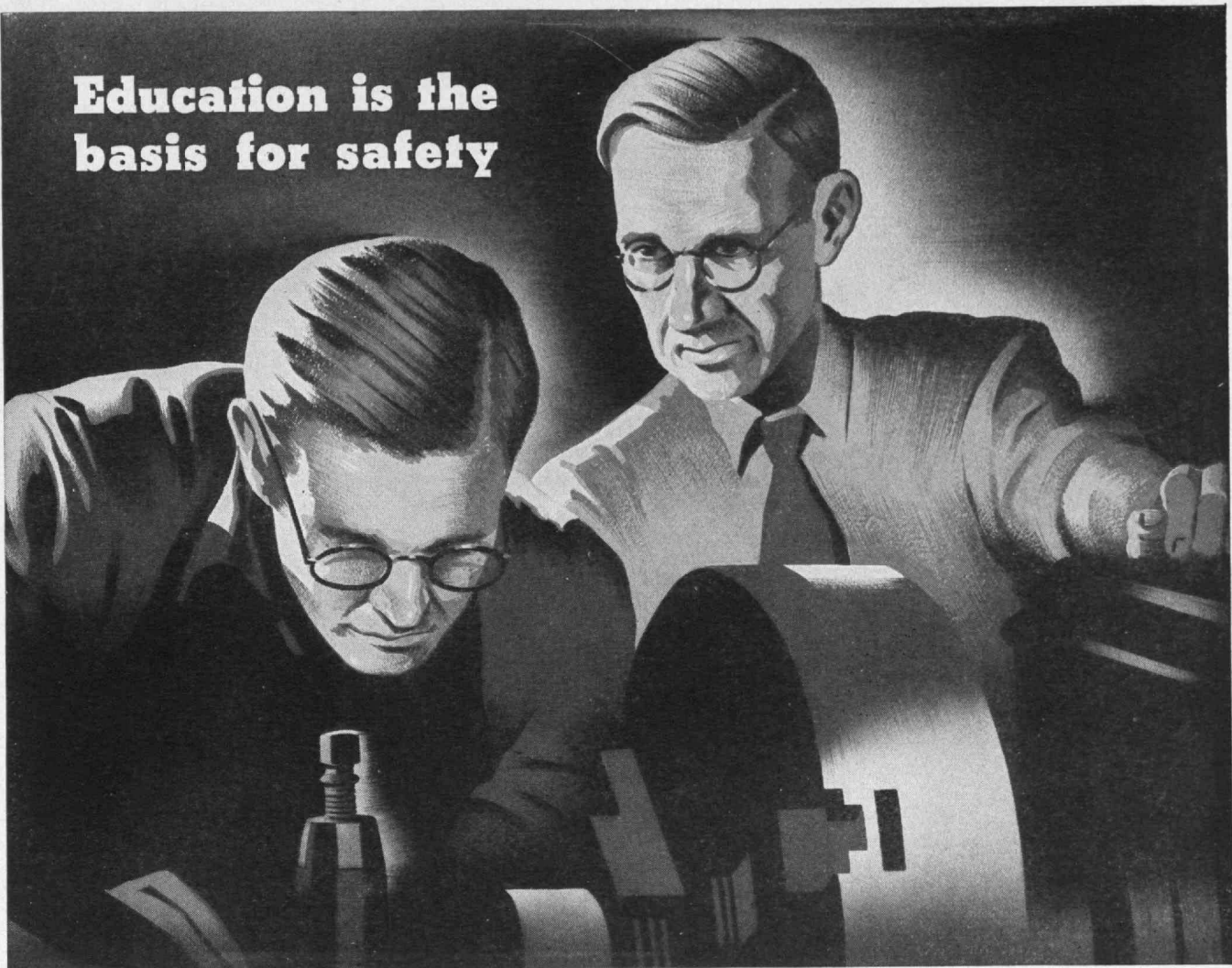
**Matrix.** — From HERBERT S. SWAN, city planner and industrial consultant, The Review presents (page 75) commentary upon the readjustments which will probably be necessary in urban employment structures as a consequence of the specialized and impermanent alterations in force during war. Employment patterns before Pearl Harbor will not, he holds, coincide with those to be foreseen once the Axis is defeated. How the discrepancies may best be eased is a question deserving thoughtful consideration now.

**Canny Calorifics.** — What the householder may and should do to hold heat in the house and so help hit Hitler by saving fuel and lightening transportation loads is discussed (page 77) by JAMES HOLT, '19, Associate Professor of Mechanical Engineering at the Institute. Professor Holt's special field of interest is the engineering aspects of heating and ventilating. His article is a practical survey of a practical question.

**Special.** — In this issue (page 79) W. MACK ANGAS, '17, Captain, Civil Engineer Corps, United States Navy, concludes his account of the pioneering steamboats which played important parts in the development of American transport. Specialized through an evolutionary process for the particular hazards of big-river navigation, the steamers of the western rivers like the sound steamers of the seaboard were, in Captain Angas' phrase, "as American as corn whisky." Correspondents of The Review have pointed out that though the economical Scotch omit "e" from the second syllable of that spirituous word, American versions of the fluid are labeled "whiskey." On this controversial matter, failing exhaustive research, The Review for the present at least is following Webster, and the Scotch.

**Mars, Chemist.** — Dedicated to M.I.T. men of the first and of this World War, *Gas Warfare* by Alden H. Waitt, '14, Brigadier General, Chemical Warfare Service, United States Army, is reviewed (page 70) by LEICESTER F. HAMILTON, '14, Professor of Analytical Chemistry and Acting Head of the Institute's Department of Chemistry, who writes with authority as a chemist and with interest as a classmate of General Waitt.

## Education is the basis for safety



*Information supplied by the National Safety Council*

Labor, particularly inexperienced labor, cannot be expected to recognize the full penalties of carelessness in the shop. Management has assumed the responsibility of supervising safety measures, and has cooperated in establishing sound safety rules.

Nevertheless, the large increase in labor personnel due to war needs, plus the influx of inexperienced men, have resulted in a substantial increase in lost time accidents.

Even assuming that the obvious safety measures with regard to operating machinery, electrical equip-

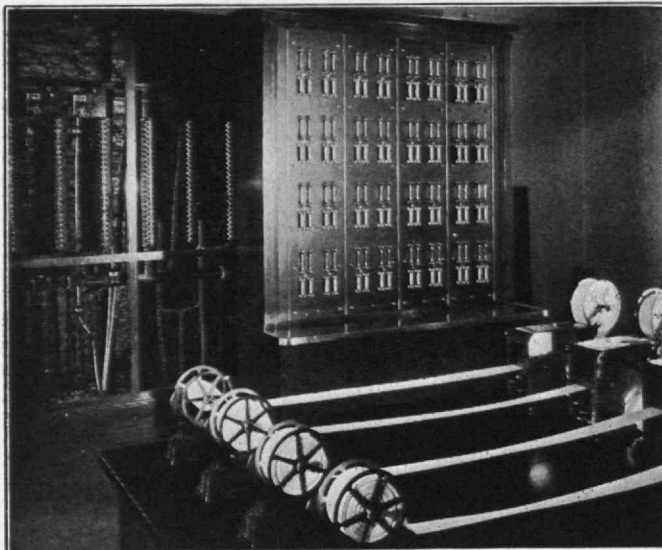
ment and shop traffic have been installed, two factors — education and eternal vigilance — determine the real effectiveness of any safety program.

Both are the responsibility of the supervisory staff, from foremen up. The foreman who does a thorough job of educating his particular group in safety rules and cooperative enforcement has done much to cut down accidents. Management that takes an active interest in both safety education and the enforcement of safety measures has taken a great step forward in reducing wastage of irreplaceable production time.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS. MOLYBDIC OXIDE—BRIQUETTED OR CANNED • FERROMOLYBDENUM • "CALCIUM MOLYBDATE"

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Reg. U. S. Pat. Off.

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Herbert G. Pratt, '85, Chairman of the Board

Manufacturers of braided cords of all kinds, including sash cord, clothes line, trolley cord, signal cord, shade cord, Venetian blind cord, awning line, etc., also polished cotton twines, ladder tape for Venetian blinds, and specialties.

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Our extra quality sash cord, distinguished at a glance by our trade-mark, the colored spots. Especially well known as the most durable material for hanging windows, for which use it has been specified by architects for nearly half a century.

## MAIL RETURNS

### *Publish to Progress*

FROM ALVIN GUTTAG, '40:

. . . I have read with interest the letter by Charles H. Blake, '25, [November Review, page 8], and although I agree with him wholeheartedly on the points mentioned in the first two paragraphs, I cannot say the same for his major thesis — the suppression of knowledge of medical and other scientific improvements. In one or two instances he is right that information should be suppressed; in the vast majority of cases, however, we are hurting ourselves more than we are hurting the Axis. While it is difficult for the Axis to obtain copies of the journals in which scientific information is propagated, these same journals are the means of one scientist's conveying to another one in this country the knowledge of what he has found. If we do not permit scientific discoveries to be published so that they can be improved upon, we shall soon find that we won't have many scientific discoveries to worry about.

Richmond, Va.

### *Dickens' Joke*

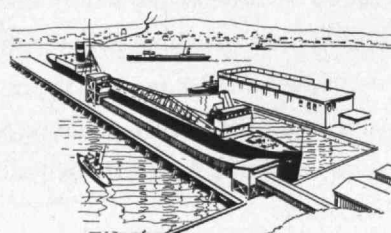
FROM LONSDALE GREEN, '87:

I was immensely pleased and surprised to find the group picture of the Class of 1887 in the November Review. . . .

You deserve a lot of credit for the "M.I.T. Men at War," which filled six-and-a-half pages in the supplement of the November issue.

Captain Angas' article about steamboats was interesting. I note that another article of his will appear about our western steamers [see page 79]. Here are excerpts from what Charles Dickens wrote in his *American Notes* of 1842. He and his wife went from Pittsburgh to St. Louis via the Ohio and Mississippi rivers with a return trip to Cincinnati, from there by stagecoach to Columbus and Tiffin, thence by railroad to Sandusky, and finally another boat trip to Buffalo. He "knocked" almost everything he saw except Cincinnati and its people. He found some culture there and acknowledged it. At that time Cincinnati was, I think, about the fifth city in population in the United States and was the largest west of Philadelphia.

"These Western vessels are still more foreign to all the ideas we are accustomed to entertain of boats . . .," Dickens wrote. "They have no mast, cordage, tackle, rigging, or other such boat-like gear; nor have they anything in their shape at all calculated to remind one of a boat's head, stern, sides, or keel. . . . The whole is supported on beams and pillars resting on a dirty barge, but a few inches above the water's edge: and in the narrow space (Concluded on page 102)



Old Colony Coal Terminal

### *Speed with Economy*

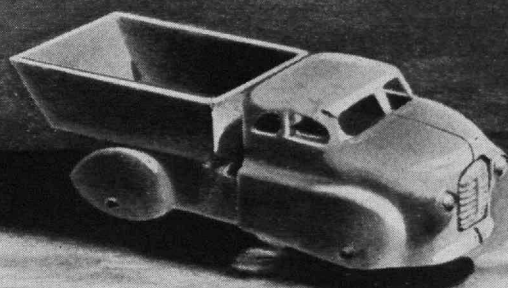
In our 25 years of industrial building, we have erected factories, warehouses, power plants, coal handling terminals, bulkheads, special tanks, etc. This wide range of experience may prove valuable to you.

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Alfred T. Glasett, '20, Vice President



## DEATH CAR...

ONLY A CHILD'S TOY on an unlighted stairway. Yet as lethal as a speeding truck for killing or crippling. For causing heartbreak and tragedy in someone's home.

Accidents . . . in the home . . . on the highways . . . in factories and offices . . . cost this nation 102,500 lives last year. This tragic toll, preventable to a great extent, was augmented by the permanent disabling of 350,000 other people . . . by 9,000,000 lesser casualties.

Production-wise, America's war effort lost heavily. In all, 480 million man days were lost forever. Enough to have built a total of 20 battleships, 100 destroyers, 9,000 bombers, and 40,000 tanks! Money-wise, the loss was almost 4 billion dollars!

Where did these accidents happen? Two-thirds of them happened outside of industry. In the home, where workers take chances they would not dream of taking on the job. They happened in darkened hallways . . . in bath tubs . . . in garages and basements. They happened in industry where someone gambled with safety.

No matter what you do, your life is precious to this nation. Don't take chances with it. Guard it for America . . . at day . . . and at night. Fight carelessness, the Master Saboteur! Join the anti-accident crusade! Help save a life!

The perfection of the famous "Eveready" fresh DATED flashlight battery called for coordination between various Units of Union Carbide and Carbon Corporation. The exact grade of graphite necessary for the "mix" was developed by the Acheson Graphite Corporation. Special alloy for protecting molds and machinery was produced by the Haynes Stellite Company, and Carbide and Carbon Chemicals Corporation provided a specially prepared paint made of "Vinylite" resins for the spun metal cap.



"EVEREADY" FLASHLIGHTS AND BATTERIES  
NATIONAL CARBON COMPANY, INC.

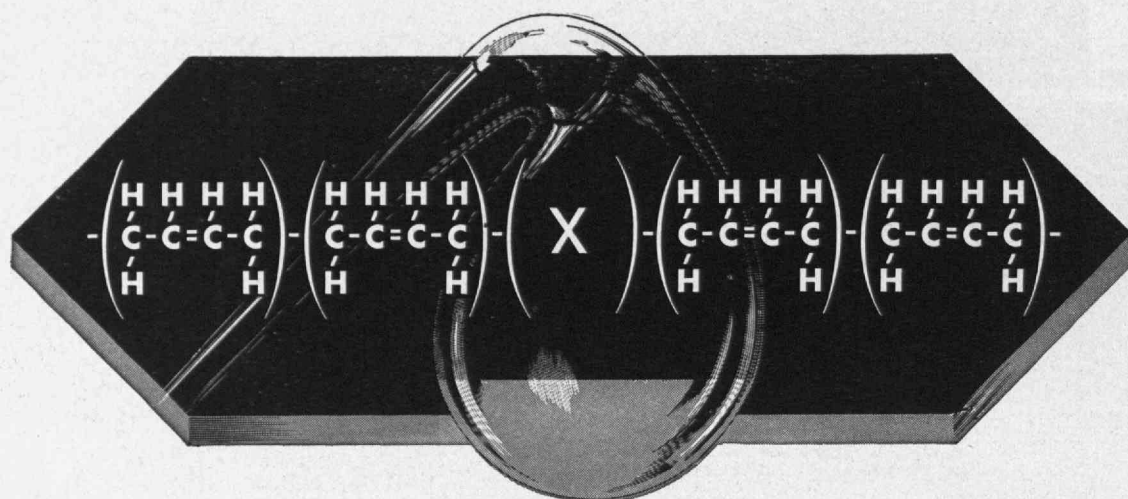
30 EAST 42ND STREET • NEW YORK, N. Y.

Unit of Union Carbide and Carbon Corporation



The words "Eveready" and "Vinylite" are registered trade-marks.





## How SYNTHETIC RUBBER is made

**T**HIS formidable chain of symbols is the chemist's formula for one of the oil-resisting synthetic rubbers known as Chemigum, made by Goodyear.

In natural rubber a somewhat similar long-chain grouping of carbon and hydrogen atoms is accomplished by nature. In synthetic rubber, the trick is to combine the right molecules by a complicated chemical process called polymerization.

Many organic materials lend themselves to this process. Coal, grain alcohol, acetylene, petroleum, natural gas and other hydrocarbons can be used. With each, the method of treatment differs, and the resultant products vary greatly in rubber-like characteristics.

Thus in synthetic rubber manufacture far greater responsibility for quality rests upon the experienced skills of the chemist and compounder than in working with natural rubber.

Our first patent covering synthetic rubber manufacture dates from 1927. Since then we have tested more than 300 different com-

pounds in search of a synthetic that would duplicate or better rubber's desirable properties.

Of all these, Chemigum proved best. It can be compounded to excel natural rubber in withstanding wear and abrasion—or made more resistant to oxidation, extreme cold, gasoline and oil. Its chief shortcomings are handling difficulties in manufacture and, as yet, high cost.

For the past four years Goodyear has been using Chemigum commercially with great success in many specialized industrial products where its marked superiority over rubber offsets higher price.

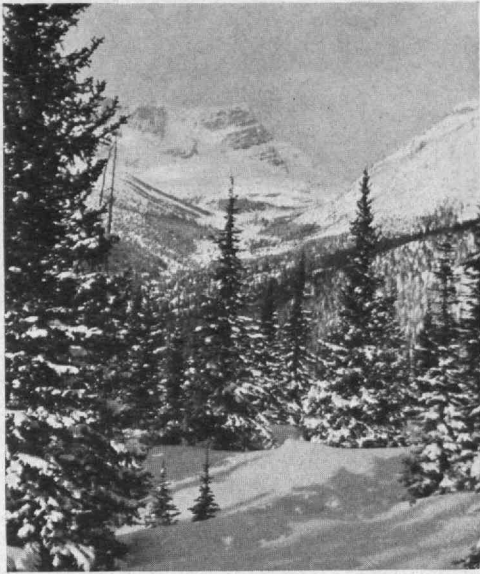
Under the urgency of war, new, low-cost, mass-production methods are being rapidly accelerated in cooperation with the government program. Just as soon as sufficient supplies of this miracle material are forth-

coming, Chemigum can, if necessary, be used for virtually every purpose now served by natural rubber.



THE GREATEST NAME IN RUBBER  
**GOOD YEAR**

Chemigum—T. M. The Goodyear Tire & Rubber Company



Kenneth E. Bell, '17

Mount Ptarmigan in the Lake Louise region,  
Alberta, Canada

VOLUME 45

NUMBER 2

# THE TECHNOLOGY REVIEW

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EDITED

AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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From a photograph by Richard W. St. Clair, '36

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*Raymond B. Collier, '20*

*From a chariot of peaceful  
conquest — detail of a wheel  
of one of the pioneer covered  
wagons that crossed the plains  
when the American West was  
a frontier land*



# THE TECHNOLOGY REVIEW

Vol. 45, No. 2



December, 1942

## The Trend of Affairs

### *Invention Inventory*

DO "the Japanese copy everything and invent nothing" as many a kerbstone commentator has been prone to observe? A thoughtful contemporary, the *Journal of the Patent Office Society*, has in recent issues presented data contributing toward an answer to this question and affording an interesting glimpse into Japanese history and attitude. Establishment of a patent system in Japan occurred only 43 years ago, with the passage of a patent act in 1899. Preliminary to that event, says Maurice W. Levy in the *Journal*, the Japanese Government sent Korekiyo Takahashi to the United States as special commissioner to study our patent system. Assisted in every way by the American commissioner of patents, Mr. Takahashi gathered all the information he wished, securing much through numerous interviews with P. B. Pierce, then examiner of designs. At length he was asked by Dr. Pierce to answer the one question of why the people of Japan desired a patent system.

As quoted by Mr. Levy, Mr. Takahashi's reply was: "You know it is only since Commodore Perry, in 1854, opened the ports of Japan to foreign commerce that the Japanese have been trying to become a great nation, like other nations of the earth, and we have looked about us to see what nations are the greatest, so that we could be like them; and we said, 'There is the United States, not much more than a hundred years old, and America was not discovered by Columbus yet four hundred years ago'; and we said, 'What is it that makes the United States such a great nation?' And we investigated and we found it was patents, and we will have patents."

About 20,000 steps toward national greatness are taken annually by the Japanese patent office. Citing statistics gathered by A. Robinson, the *Journal* reports that in 1939 a total of 22,448 patents were granted but

that 16,535 of them were utility model patents or petty patents much like the design patents issued in this country. In the same year, 41,908 patents were issued in the United States. Even so, the *Journal* concludes, patent activity in Japan during the period compares favorably with that in this country if the relative populations are taken into account and due recognition is made of the fact that in Japan, utility model applications are subjected to examination.

### *Menu for Methuselah*

MANY years ago the Russian bacteriologist Metchnikoff, nearing the end of a fruitful life, announced to a skeptical world that sour milk was the elixir of youth. Certain primitive tribes in whose diet sour milk played a prominent part owed their asserted longevity to that item, he believed. He then proceeded to drink large quantities of such milk, confusing the issue rather badly by soon dying. Apparently he had the right number but the wrong street, for while milk, sour or otherwise, may be conducive to long life, the virtue does not lie in the kind of bacteria it may contain.

Deep seated and ancient among man's desires is a life rich in years, a hope shared in growing measure by the community as well as the individual. The benefits to material and intellectual advancement arising from longer lives, and particularly from a longer duration of the prime of life, are obviously immense. In view of the increasingly long time required to bring a man to the present frontiers of knowledge, a greater expectancy of life may be a necessity to a stable civilization. Thus the importance of knowing (as we don't) why one man should live longer than another under more or less the same conditions. Many of the factors, whatever they may be, are apparently inherited. According to a study by W. Edwin Moffett and the late Raymond Pearl, one's

pulse rate is an index to life expectancy, a slow pulse being a more favorable indication than a rapid one. In rats a correlation has been found between the concentration of leucocytes (white blood cells) and longevity. And so the theories go.

Evidence has long been accumulating that the quantity and quality of the diet may constitute a not merely additional factor in the span of life but a major and fundamental one. As far as quantity goes, life insurance statistics show that thin people tend to live longer than fat ones. That the character of the food may lead to gross changes in vitality may be shown with red spiders, to take one of innumerable examples. When fed on the mallow — a plant with downy leaves — they succumbed 100 per cent to a dose of naphthalene which killed 55 to 60 per cent of spiders fed on alfalfa and only 20 to 30 per cent of those fed on the banana squash plant. The food which led to maximum susceptibility to naphthalene also resulted in the maximum metabolic rate in the spiders. The faster this metabolic rate, the faster the insects appeared to age.

Since the spider is a form of life too far removed from man to permit much comparison, a reported correlation between metabolism and food intake in mammals is of marked interest: In a recent experiment, puppies fed on a diet high in the protective food elements but so low in calories that for a time they ceased to grow were reported to maintain high spirits, normal vigor, and excellent resistance to disease. Later, when allowed free access to food, they consumed relatively enormous amounts but grew to only three-quarters the size normal for their breed. They were reported to display high vitality, a longer prime of life, and a longer life expectancy, however, than dogs fed on a more plentiful diet during their growth period.

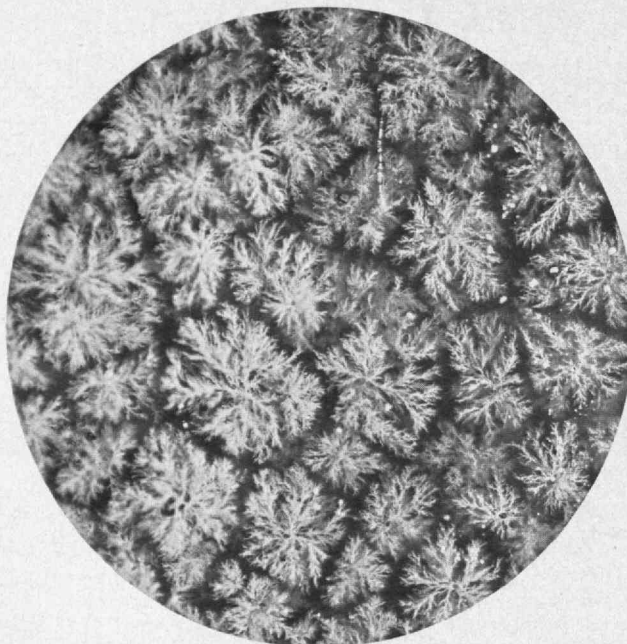
Compatible results have been obtained from experiments with rats: Rats fed on a diet low in calories but normal in vitamin content have been found to grow more slowly, to show more resistance to disease, and to live longer than rats eating as much as they want. Furthermore, an intake of calcium from two to four times larger than that adequate to support life for generation after generation has been found to result in greater vitality throughout the life span of rats. Large intakes of vitamin A appear to be of benefit, particularly in the later stages of life, its influence on female rats being to maintain their fertility and general good condition to higher ages than is usual on a merely adequate diet. The effects of many other food factors are being studied.

In view of the number of vitamins and other protecting elements in natural foods — some, no doubt, still to be discovered — and in view of the intricacy of the processes these elements affect, it is not surprising that the nature of their influence on health and longevity is not yet entirely understood. Opinion is that we have lost many important nutrition values in the technological advance which has insured a continuous supply of food

in ample amounts and free from spoilage. If resistance to disease and if maintenance of a long and vigorous existence are dependent to any large degree on an intake of vitamins and minerals approaching that enjoyed by primitive man swallowing a succulent insect, gnawing a bone, and finishing his kill even to the viscera, or by the peasant chewing on his black bread and cheese, then our national interest in vitamin preparations and in the spread of fortified foods which have a much higher ratio of protective values to calories than exists in most processed and refined products is indeed a good sign. Not that dissenting voices are not heard; some of them say that the lack of vitamins in the diet of industrial nations is not nearly so

important as claimed and that unless the program is properly balanced, the net effect of our preoccupation with vitamin preparations and vitamin-enriched foods may be an increase in disorders.

Along with the evidence pointing toward the value of large amounts of vitamins and minerals in the food are data suggesting that diets low in calories may also contribute to long, healthy lives. Ignoring the effects of other factors apt to accompany one type of diet or the other, a person may argue that the unlimited food supplies which, to give one illustration, have resulted in classes of college students inches taller and many pounds heavier than their parents, carry no more assurance of long life than the diets enjoyed by millions of people who, from birth to death, can count on their fingers the "full" meals they have had. Perhaps it is comforting to our present notions of the pleasant life that the specifications for the optimum diet for a human being are not yet known.



*Bell Telephone Laboratories*

*Dendritic sulphur as it crystallizes in masticated crepe rubber. At this stage of crystallization, the sulphur will readily go back into solution when the rubber is again heated in the vulcanizing process.*

## Gas Warfare

BY LEICESTER F. HAMILTON

THE relatively insignificant role which gas warfare has thus far played in the present war has tended to cause many to neglect, and unjustifiably, the impor-



tance of gas as a potential weapon in this conflict. How essential a weapon gas had become in routine hostilities on the western front by the end of 1918 is probably not generally realized. By that time the Germans were including chemicals in over 50 per cent of their shells of all types, and Ulrich Müller, an authority on German chemical warfare, was moved to declare: "The German front would never have succeeded in withstanding the powerful onslaught of the concentrated forces and war materials of almost the whole world if German chemists had not at that moment held the protecting shield of the Yellow Cross Substance [mustard gas] before the German soldiers."

A more recent example of the effectiveness of gas was the defeat of the Abyssinians by the Italian army in 1936. Major General J. F. C. Fuller, who accompanied the Italian army as special correspondent throughout the campaigns in Ethiopia, observed: "It is no exaggeration to say that mustard gas sprinkled from airplanes was the decisive tactical factor in this war, because it shortened its duration by months if not by years."

The fact that gas is also a weapon supremely adapted for the war behind the lines is emphasized by Brigadier General Alden H. Waitt, '14, Chemical Warfare Service, in his recent book.\* As he states: "Enemy gas can slow down the industrial effort more than any other single weapon. Combined with explosives, it can bring production to a full stop. Consequently, the worker has an interest in protection against gas equal to that of the soldier. Gas warfare will be directed against the centers of industry and transportation. The man behind the lines, therefore, must be just as able to protect himself against gas as the man behind the gun."

Why, then, has this weapon been so little employed during the present conflict? For Europe, at least, the answer lies in the elaborate defense measures developed by the various powers. Protection against gas attack is entirely feasible and depends on the average citizen's degree of preparedness and familiarity with the problem. Lacking this specialized knowledge, he would be ignorant and afraid; this fear of the unknown is the greatest menace that gas offers to an unprotected community.

In this country, extensive ignorance of the properties of war gases has bred fear, which has not been allayed by the popular-science descriptions of war gases possess-

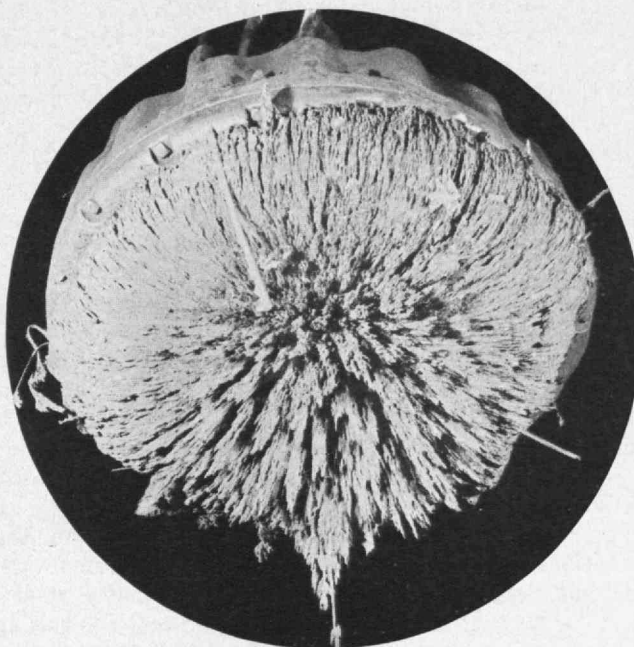
ing incredible destructive powers. A problem exists, therefore, of educating the average citizen in the proper measures needed to protect himself, his family, and his property against possible gas attacks. As General Waitt puts the case: "Protection of a person against gas is simple and practicable. Only the ignorant need fear gas. Anyone willing to provide himself with proper means of protection (which are available), and to acquire a little

information about how combat chemicals behave, can dismiss fear of gas from his mind and heart. Most casualties from gas are avoidable. The great problem in protection is training, discipline, and organization. The difficulty is in making the individual take the necessary measures that will guarantee his safety."

*Gas Warfare* was designed to be a nontechnical treatise for civilians as well as soldiers; for gas officers; for air-raid wardens; and for citizens interested in their own protection. As such, it has successfully translated the complicated chemical aspects of the subject into a remarkably thorough discussion intelligible to anyone. The very interesting historical background on the origins of the preparation and use of war gases is included; the modern techniques of chemical warfare are clearly described; and, the book concludes with a long discussion of gas defense, including protection, decontamination, and first-aid procedures necessary for handling gas casualties. In short, this is a book to be read and studied by anyone interested in his own safety in this most extensive of all wars.

### Farrago

FIBROUS paper with a plastic lining and reinforcement which make it leakproof is the material of a new container for lubricating oil, designed to conserve critical materials. The lining is made through processing of corn, flaxseed, animal tissue, bones, and other non-critical substances. ¶ Rhodesian mahogany trees in an experimental planting by the University of Florida appear to be forming wood four or five times as fast as do pines of their own age and have trunks twice the diameter of the pines. Trees set out 12 years ago are 40 feet high, with seven- to eight-inch trunks. ¶ Fibrous glass appears in another use in a low-power flexible heating element. The resistance wire is wound on a core of the glass, and a braided covering of the fibrous glass gives outside protection. Flexibility is cited as a particular advantage of the use of glass in the element. ¶ Tires containing 99.84 per cent synthetic



A magnet load of segregated scrap goes places in a salvage department. Sorting of scrap into grades and kinds should be done at the source in order to assure speed and efficiency in reclamation.

Westinghouse

\* *Gas Warfare; the Chemical Weapon, Its Use, and Protection against It* (New York: Duell, Sloan and Pearce, Inc., 1942). xiv + 327 pages. \$2.75.



rubber are undergoing road tests in various parts of the country. ¶ Collapsible tubes made entirely of plastic material are expected to appear on the market soon, containing the pastes, soaps, and similar products formerly packaged in metal tubes. The plastic tubes are similar in construction to their metallic predecessors. ¶ Nazi aircraft radio equipment, according to details released by British authorities, is inferior to that of the United Nations only in its excessive weight. Materials used in construction are not inferior, and electrical performance is good. The Nazi instruments possess no features excelling apparatus used by the United Nations. ¶ Harvested this month will be the first crop of malva blanca from a 300-acre experimental farm in Cuba, where the possibilities of the plant fiber as a source of material to replace jute are being studied. The malva blanca fiber, if experiments are satisfactory, will be used in making sugar bags. The plant grows wild in both Cuba and Venezuela. Curtailment of jute imports from India has actuated the study, which may provide Cuba with a new industry employing 60,000 or 70,000 persons in the fields. ¶ A million tons of mixed concentrate of zirconium and titanium minerals are estimated to lie in the beach sands of the northern coast of New South Wales, Australia.

### *Multiform Appendix*

THE reports of many institutions of learning run rather strongly to statistical and financial detail of interest only to the directors of allied organizations. The Smithsonian Institution, however, seems never to lose sight of its primary purpose — "... the increase and diffusion of knowledge among men." Consequently its present report,\* for the year 1940-1941, gets over the formal details in 136 pages and then devotes the remaining 447 pages to what is modestly called a "General Appendix." The title masks an assemblage of variegated interest. The 23 articles composing this appendix range over many fields of science and engineering, from interstellar space to the Eskimo child. Some newly published here and some reprinted, the papers are partly accounts of special investigations and partly summaries. Some of the authors — Hoyt C. Hottel, '24, Arthur H. Compton, and the late Benjamin Lee Whorf, '18 — are well known to readers of *The Review*.

Professor Hottel's discussion of converters of solar energy is a statement, based on the thermodynamics of the methods proposed, that the familiar devices used to accumulate heat from the sun's energy have not been demonstrated to yield cheaper power than may be obtained from the burning of fuel. It is significant that, in general, fuel contains energy accumulated photochemically by plants, since Hottel concludes that photochemical or photoelectric utilization of solar energy is a more promising field of inquiry.

In these days when we both wear and drink the lacteal product of the cow, particular interest attaches to a survey of the present state of synthetic and artificial textile fibers by Herbert R. Mauersberger, technical editor of *Rayon Textile Monthly*. It is only fair to say,

\* Washington: United States Government Printing Office, 1942. xiii + 596 pages. \$2.00.

though, that casein fibers are by no means the most important of these materials. A very striking fact about the man-made fibers is that apparently only nylon and vinyon owe an appreciable part of their strength to a conscious process of orientation of their molecules. Natural fibers are highly oriented. Most synthetic fibers have, in the manufacture, lost whatever orientation may have been possessed by the raw material.

Arthur H. Compton of the University of Chicago and Eliot Blackwelder of Stanford University both discuss essentially the same subject — the relation of science to man's prospect for the future. While the former is impressed by the contributions of science to the power for good rather than for evil, the latter very correctly deflates us by pointing out that increase of knowledge has not led to actual improvement in native intelligence and may not save *Homo sapiens* from being supplanted by some better stock.

Tangentially illustrative of this bubble pricking are the remarkable account of Solomon's smelter refinery at Ezion-geber by Nelson Glueck, sometime director of the American School of Oriental Research, Jerusalem, and Benjamin Lee Whorf's report of his partial decipherment of Mayan hieroglyphs. The first of these describes a seaport, Ezion-geber, built at the head of the Gulf of Aqaba by Solomon. In the last 3,000 years no essential physiographic change has occurred in this area. The site is noteworthy for the harshness of its climate, being without drinking water and being harassed by a continuous northerly wind which pours out of the rift valley between the gulf and the Dead Sea. Glueck calls it a natural wind tunnel. These conditions prevail on a strip hardly a mile wide, and yet this strip was chosen for a settlement. Along the course of the rift mentioned are various ancient mines and smelting sites for iron and copper. Excavation of Ezion-geber has revealed that it was a fortified refinery, chiefly for copper. One large building had a system of flues and tuyères in its walls to take advantage of the continuous wind to yield a forced draft. The entire development represented a sound engineering analysis and solution of the problem of large-scale smelting and refining without modern power plants.

Whorf's paper has to do with the independent invention by American Indians of a method of writing which is in some ways singularly like the Egyptian. The paper is especially interesting as an example of the reading of a known language in an unknown writing, and is important as a paper because it stresses the now rather overlooked fact that the value of linguistics is much greater than the historical content of a particular text. The discussion is written with the forthright firmness characteristic of Whorf's ingenious mind.

The relation between forest insects and forest management, the problem of snake bite during the Hopi snake dance, the occurrence of vitamins in foods, the care of captive animals, the geography and culture of Iceland — subjects such as these and a number more go to complete the "General Appendix." All in all, this section of the Smithsonian's report may be regarded as a stop-motion picture of the activities of the curious and persevering human intelligence energetically at work in a score of scientific fields.



Houbraken's engraving of the portrait of Isaac Newton by Sir Godfrey Kneller, showing the scientist in his 47th year

Bettmann Archive

## Scientist Extraordinary

### *Newton's Achievements, Surveyed on His Tercentenary, Place a New Accent on Youth*

BY GEORGE R. HARRISON

"Sir Isaac Newton was the boy  
That climbed the apple tree, Sir;  
He then fell down and broke his crown,  
And lost his gravity, Sir."

— James A. Sidey, *The Irish Schoolmaster*.

ONLY 15 years have passed since the world commemorated the 200th anniversary of the death of a man who has been called the greatest genius who ever lived, the world's pre-eminent scientist, a national monument to England, and a superman. Probably Newton really does deserve some of these epithets.

That we should so soon after be celebrating the 300th anniversary of his birth indicates not only that he lived to be over 84 but that we are eager to express our admiration for him formally at any excuse which the calendar can give. Informally we might well do so every time we drive a car, operate a phonograph, or use any one of a thousand appurtenances of civilized life. To the college freshman of today, the great Sir Isaac is famous

but fusty — a dour old professor who originated the laws of mechanics, including that celebrated Institute battle cry,  $F = ma$ . What a shock it would be to many of these students to learn that Newton was actually no older than themselves when he made his most important discoveries! As a matter of fact, all four of his greatest contributions to our understanding of the physical universe were made when he was between the ages of 19 and 30. If Newton had lived only a third as long as he actually did, his name would carry luster inappreciably less great than it now possesses.

In his nineteenth year, Newton entered Trinity College, Cambridge. There he displayed great independence of mind and was soon freed from the requirement of attending lectures, being allowed to roam at will intellectually. He received meals, lodging, and tuition in return for waiting on table and doing other tasks not far removed from those which are performed by the students of today who also work their way through college. At the time when he first started the study of geometry, Newton showed much the reaction of some freshmen of

today to their first courses in physics, a great deal of which is occupied with Newton's laws. He had a very poor opinion of Euclid, since to him the things Euclid was trying to prove appeared to be self-evident and the whole thing to be much stir of little porridge. When he came up for a scholarship in 1664, the professors in charge decided that he knew almost no geometry and said that he had no business in the mathematics department, being obviously an experimental physicist primarily. This statement staggered Newton a bit; so he learned his geometry and later brought renown to Cambridge University by inventing calculus, which he called the "theory of fluxions." Newton was just over 22 years old when he discovered the binomial theorem.

I have always thought that it must have been easier for the youthful Newton to invent the calculus than for the average youthful student of today to learn to use it. When he developed the fluxions, Newton was not trying to discover a new mathematical system; he had a job which he wanted to do, and he took the necessary logical steps one after another to accomplish it. It was this ability of his to proceed one step at a time in the direction he wanted to go toward the integration of some tremendous natural law that led him to his towering attainments.

Newton worried about his finances throughout his student days, and poverty dogged him during all of his early life. Whenever he managed to scrape extra funds together, he was likely to squander them on glass tubing, chisels, and other equipment for his shop. He fitted up his living room for this purpose, and soon lens-grinding compound and brass filings were scattered all over the floor. Actually he appears to have had great skill as an experimenter, and telescopes still extant which he made entirely with his own hands show workmanship that would be a credit to a professional instrument maker working with the tools produced several centuries later; for this greatest of natural philosophers, prime physicist of a millennium, prided himself first of all on his experimental skill and loved to spend his days and nights in puttering. Yet the world remembers him chiefly for his accomplishments as a theoretical physicist.

At the time Isaac Newton was a boy, science was just on the verge of becoming fashionable, though it still had a tinge of more to go before it really hit its stride. No college laboratories were available when he became a professor at Trinity College at the age of 26. He had the same habit of keeping irregular hours of eating and sleeping for which Edison became noted two centuries later. While Newton was a professor at Cambridge, he was likely to be more relieved than otherwise when no one came to hear his lectures, for he could then go back to his mirrors and prisms. Apparently he was the only member of the faculty who bothered to try out any of his ideas by experimentation. The rest argued with each other and passed their convictions on to the students.

It has been pointed out that if Newton had heard himself described as an "experimental philosopher," he would probably have considered the expression tautological. He considered himself a philosopher, or "lover of wisdom," which to him meant trying things to find out what happens. In modern terms he would be

called first a physicist, then a mathematician, and somewhat less often a chemist and metallurgist.

Newton was a very human person, sedate and humble about his real accomplishments, vain of some which were imaginary. As a youth he was mild and pleasant, though later in life, after gout began to get the better of him, he is said to have been difficult to get along with. He became something of a hypochondriac and was always fond of fixing up special medicines with which to dose himself. Since he lived to be over 84, one would have difficulty in proving that they were valueless.

Though much has been written and said in appreciation of Newton, one important question about him has not yet received a completely satisfactory answer. In the back of his mind, every would-be scientist may well wonder, "What did Newton have that I haven't got?" All will agree that Sir Isaac had plenty of something. Only a man of equal caliber could answer the question completely, but certain parts of the answer are obvious. One is that he had plenty of curiosity. In modern educational terms, Newton was "motivated." He wanted to know. He would rather try an experiment with a prism or a beaker of acid than eat his dinner, comb his hair, or fall in love. Hence he apparently never did the last of these things and seldom bothered about the preceding two. Another part of the answer seems to have been the ability to put 2,000 and 1,000 2's together and make 4,000. Newton had a tremendous capacity for absorbing information and retaining it, not in his memory but in a distilled, synthesized, and co-ordinated form which made it instantly available for his use. Thus his great mind was able at a glance to perceive interrelationships unconnected in the view of the casual observer, and he was able to make the great generalizations regarding natural laws which made him famous.

The scientist who perhaps most closely approaches Newton in stature is Einstein, who shows a similar ability to deduce from observed facts some tremendous underlying commonality which correlates them and shows them to be part of a unified whole. The layman is prone to believe that Einstein proved Newton's law of gravitation to be wrong, and that he deduced a new and correct law. This is not at all the fact; Newton has had no greater admirer or more staunch supporter than Einstein. Newton set up a law of gravitation which worked perfectly for the world as he knew it, and 999,999 times out of a million the law works for the world as we know it. Noting that Newton's laws lead to ridiculous results in certain extreme cases, such as those involved in the long distances from one end of our galaxy to the other or the very high speeds of the newly discovered subatomic particles, Einstein extended Newton's law to take care of these cases. He contradicts Newton only in those regions of the universe of which Newton knew nothing. Einstein's law rests upon Newton's as its foundation and is only a generalization and extension of that law.

At the time of the 200th anniversary of the death of Newton, Einstein wrote an article of appreciation in the *Manchester Guardian*. He referred to Newton as his guiding spirit, and pointed out that Newton had influenced the path of Western thought and investigation as had none before or after him. (Continued on page 86)



# From War to Work

*Urban Employment Patterns Will Be Widely Readjusted When Millions Return to Civilian Availability; Cities Should Consider Preparations Now*

BY HERBERT S. SWAN

**E**VERY month before Pearl Harbor some 125,000 new boys and girls sought gainful employment. Inexperienced, fresh from school or college, and for the most part lacking definite training for a particular job, they elbowed their way into a national labor market spread over 3,071 counties and already preempted in 1940 by 52,840,762 workers distributed in agriculture, mining, transportation, business, and manufacturing. With allowance made for deaths among employed men and women, the national economy had to provide jobs of one kind or another for a net annual increase of about 600,000 workers a year.

Such was the situation in normal times. From a review of it, we may work toward establishing the general pattern of employment and consider the ways in which wartime alterations may modify it. Millions of men and women have been taken from the general labor market today and trained in special skills demanded by special occupations which will cease with the war; what their return to civilian availability will mean can more readily be envisioned through comprehension of the urban employment matrix from which they went in the first place.

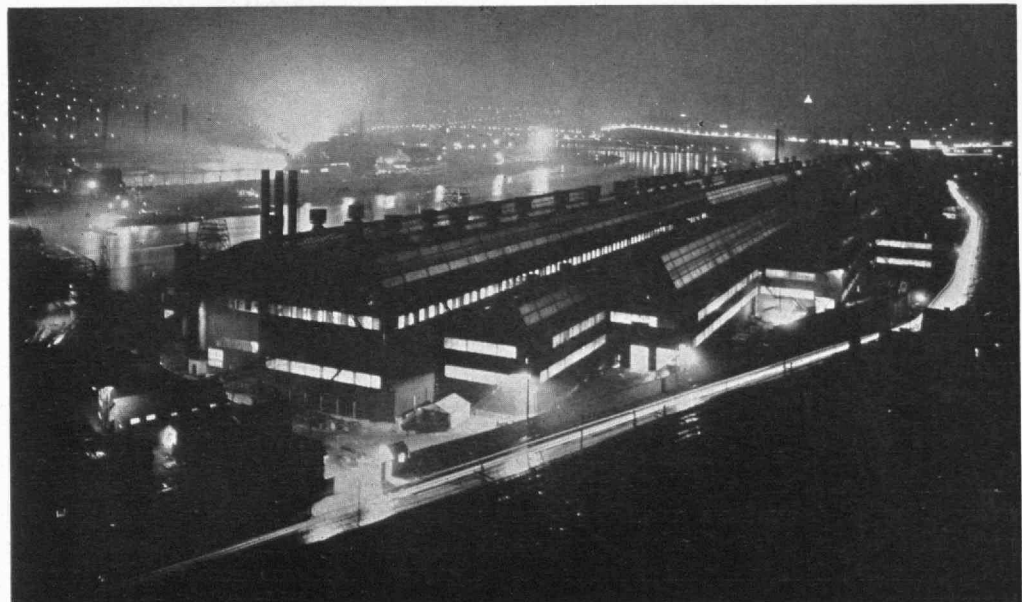
If we classify the normal peacetime work force between the two sexes as census figures have shown it in the past, we have the following distribution per thousand males, per thousand females, and per thousand workers engaged in primary and secondary occupations:

|   | Males        | Females      | All Workers  |
|---|--------------|--------------|--------------|
| Agriculture.....                        | 251          | 85           | 214          |
| Forestry and fishing.....               | 7            |              | 5            |
| Mining.....                             | 26           |              | 20           |
| Manufacturing.....                      | 320          | 175          | 289          |
| <i>Total primary occupations.....</i>   | <i>604</i>   | <i>260</i>   | <i>528</i>   |
| Trade.....                              | 134          | 90           | 125          |
| Transportation and communication..      | 94           | 26           | 79           |
| Public service.....                     | 22           | 2            | 18           |
| Professional service.....               | 45           | 142          | 67           |
| Domestic and personal service.....      | 47           | 295          | 101          |
| Clerical occupations.....               | 54           | 185          | 82           |
| <i>Total secondary occupations.....</i> | <i>396</i>   | <i>740</i>   | <i>472</i>   |
| <i>Grand total.....</i>                 | <i>1,000</i> | <i>1,000</i> | <i>1,000</i> |

Of all persons in this peacetime force in 1940, a total of 80.1 per cent were classified as in urban and rural non-farm occupations and only 19.9 per cent as in rural farm occupations. The pattern of urban employment hence is of first importance in analyses looking to the future.

Each city has a characteristic economic and employment structure. Large cities, emphasizing trade and commerce, tend to have more persons employed in clerical, professional, and commercial pursuits and fewer persons engaged in manufacturing. Smaller cities, in the nature of the case possessing less trade, have a larger proportion of workers employed in manufacturing. One fact stands out clearly from examination of employment trends in different cities: Before the war began,

*Wartime work spreads a pattern of light over the night sky.*



cities were turning more and more energy into commercial and service channels and giving correspondingly less attention to manufacturing. During the past two decades it has been not the increase in manufactures, but the development of trade and services, which powered the growth of cities, especially larger cities. Explanation for this occurrence probably lay in the evolution of large-capacity, mass-production machinery which released considerable numbers of workers from manufacturing to other pursuits.

Diversion of this machinery to specialized war production, the scrapping of dies and jigs as the manufacture of many peacetime goods has been terminated, imply readjustments in future years. Whether from wartime industries we shall derive new goods and new manufacturing techniques which will start a new evolutionary process is a question that planning must take into account. The normal flow of workers into commercial and service channels, moreover, has been greatly upset by the drafting of millions of young men and the diversion of thousands of young women and of other men into what we may call nonce-manufacturing — the production of highly specialized goods demand for which, when it ends, will end abruptly. Will these people return to the normal channels of pre-Pearl Harbor America?

According to the 1940 Census, 79.0 per cent of the males and 25.5 per cent of the females over 14 years of age sought gainful work. The employable population by age groups increased year by year in peacetime to a maximum of 65.7 per cent for age group 20 to 24. From then to age 54, at least 60 per cent of the total population sought gainful employment. The proportion of employed persons in different age groups varied considerably for the two sexes: For males it reached a peak of 97.7 per cent in age group 35 to 39 years; for females, a peak of 42.4 per cent in age group 20 to 24 years. The proportion of men employed in different age groups remained approximately constant from 20 to 59 years, ranging as a rule about 90 per cent. For women, the percentage employed in different age groups was always less than that for men. Between 1930 and 1940 the proportion of males 14 years and over in the work force or in gainful employment dropped from 84.1 per cent to 79.0 per cent. That for females, however, increased from 24.3 per cent to 25.5 per cent. For the two sexes together, the proportion declined from 54.5 per cent to 52.3 per cent.

Here is a pattern which the war has sharply affected; picture-magazine feature articles showing hundreds of girls at work with rivet guns, paint sprayers, drill presses, make the point clear enough. Women have been brought into industrial employment in far greater numbers and in a far wider range of jobs than ever before. These readjustments may well prove so effective that many of the women will continue in the active work force after the war. From the social and ethical point of view, the democratizing influence of this widened knowledge of production must have a pronounced effect in the future. If women do hold the purse strings of the average family, the more women there are who know production at first hand, the less employment there is likely to be for bright young men in advertising agencies, for example.

Most men, in normal years, enter business before age 24, by which time 88.2 per cent of the entire male population is gainfully occupied. Girls enter business at a relatively younger age than boys. They also leave employment at an earlier age. The largest loss takes place among girls in age groups between 25 and 34. Among foreign-born women, the percentage of those gainfully occupied is very high for the lower age brackets, but in the ages over 24 the proportions are smaller than among native-born white women. Notwithstanding losses, the transient employment of women at all ages is such that new women workers are distributed among various age groups more widely than are men. Men enter business upon maturity; practically all new male workers hence are employed in early age groups. A large number of new women workers, however, are employed in the latter age groups.

The entire question of the age of new workers is brought into sharp relief as military service is required of 18-year-olds and as the normal expectancy of births is upset by diversion of males to war and females to factories. In peacetime, urban growth has been the chief factor in the equation of industrial employment. Discernible trends in urban population figures had already become disturbing before Pearl Harbor. Accentuated by wartime influences, they may, unless counteracted, be interpreted as pointing to gloomy conclusions. Decentralization in wartime as a foil to the enemy bomber may work out in peacetime to be a foil to labor shortage. Certainly the urban population picture would suggest as much on the eve of Pearl Harbor. In the past, urban growth was restricted by the agricultural surplus. This situation had been reversed before Pearl Harbor: The urban population, instead of being fixed by the surplus goods marketed by the agricultural population, now by the agricultural produce it consumed limited the population of the farming regions.

But to maintain their present population, cities must attract people from rural regions. According to a life table for stationary population with death rates as of 1929 to 1931, it takes 444 children 0 to 4 years of age per 1,000 women 20 to 44 years old merely to preserve current numbers. How far cities fall short of this condition may be illustrated by taking unity, i.e., 1.00, as indicating a community with enough children to sustain present population. On the basis of such an index, cities of over 100,000 fall 24 per cent short of maintaining a static population; cities of 25,000 to 100,000 experience a 12 per cent deficiency; and cities of from 10,000 to 25,000 show a deficiency of 3 per cent. Villages of from 2,500 to 10,000 experience an increase in population of 4 per cent, while rural communities have a growth of 54 per cent. Without migration from rural regions, cities quite obviously not only cease to grow but actually decline.

This conclusion is reinforced by the 1940 Census, which showed the net reproduction rate for all classes of the population in urban communities to be far below parity. For different states the rates were as follows: New York and New Jersey, 68 per cent; Connecticut, 72 per cent; Illinois and California, 73 per cent; Pennsylvania, 76 per cent; Ohio and Maine, 78 per cent; Massachusetts, 79 per cent; Texas, 84 per cent; and Michigan, 87 per cent. For (*Continued on page 88*)

# Thrifty Warmth

## *The Problem of Economizing in the Use of Fuel Finds Answers in Common Sense*

BY JAMES HOLT

**T**HIS winter the problem of keeping the home fires burning is intensified for the householder by a number of complications more bothersome and more important than clinkers on the grate bars, oil-truck drivers suffering from absent-mindedness, family dogs who no sooner are let in than they want to go out, or visiting relatives who must have all their bedroom windows open all the way, blizzard or no blizzard. Homes must be kept warm this winter for the work of the world to go on; yet at the same time, fuel must be saved for the war machine, and, what is perhaps of greater significance, the load on our overburdened transportation facilities must be reduced. John Citizen at the ashpit or the thermostat thus has opportunity to be of real, direct help to the industry producing war materials and so to the soldier in the field using them against the Axis.

The householder's task is not so difficult, however, if he reckons with the fact that the average dwelling uses from 25 to 60 per cent more fuel than would be required if the more effective methods for saving fuel were applied. In comparatively few houses have all the economical precautions been taken. Fuel can be saved in two main ways: first, reduction of heat loss from the structure; second, intelligent operation and maintenance of the heating system. Nearly every dwelling offers plenty of opportunity for the application of at least some of the measures which make up these two groups. For many of them, moreover, experience has shown the direct percentage saving in fuel which may be expected.

The total heat loss for the typical residence without insulation and with average window construction is divided approximately as follows: loss due to infiltration, 27 per cent; loss due to glass areas, 28 per cent; loss due to wall areas, 27 per cent; loss due to roof areas, 16 per cent; loss due to floor areas, 2 per cent. Heat loss can be cut by reduction of the infiltration of cold air into the

building, by the application of heat-insulating materials, and by reduction or elimination of heat supply going to unused portions of the structure.

By infiltration is meant the leakage of cold air into the structure to displace an equal weight of warm air escaping from the structure. The immigrant cold air must be heated to the temperature

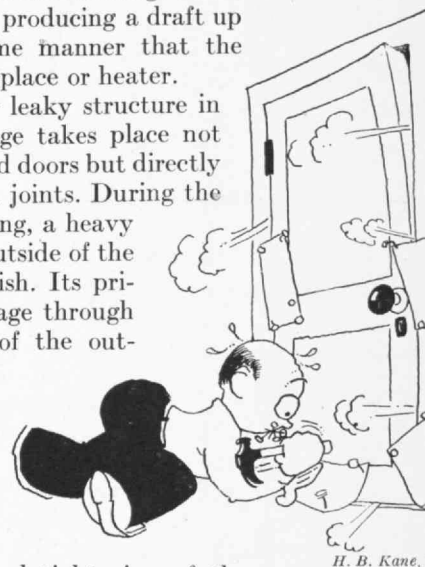
maintained in the living quarters and then may itself be pushed out by new immigration. Infiltration is caused by the action of two forces — wind pressure on the windward side of the building and the “chimney effect” due to the rising of warm air inside the building, which draws cold air from outside, thus producing a draft up through the building in the same manner that the chimney produces a draft in a fireplace or heater.

The average dwelling is a very leaky structure in so far as air is concerned; leakage takes place not only at cracks around windows and doors but directly through the walls at construction joints. During the erection of a frame type of dwelling, a heavy building paper is applied on the outside of the sheathing, under the exterior finish. Its primary purpose is to keep air leakage through the walls at a minimum. One of the outstanding reasons why the jerry-built house is a notorious fuel hog is the improper application of this paper.

Infiltration of cold can be materially reduced (a) by weather strips, (b) by storm sash and storm doors, and (c) by a general tightening of the structure. This method, which offers the greatest saving for the capital invested, is work that can be done by the owner.

The application of weather stripping to all windows and doors, if weather strips of the better type are used and are properly applied, will reduce the heat loss from infiltration 40 to 50 per cent, which would be reflected in a 10 per cent saving in fuel.

Storm sash and storm doors present a better opportunity for saving than do weather strips, since the sash and doors reduce the heat loss through the glass as well as lessen infiltration. Well-applied storm sash, without weather stripping, can lower the infiltration more than 50 per cent and at the same time reduce the loss through the glass approximately 60 per cent, which theoretically would be reflected in a 30 per cent saving in fuel. Actual savings of 25 per cent or more have been reported. The savings are dependent upon the care with which the storm sash are fitted. A felt weather strip should be tacked to the edge of the storm sash to form a gasket where the sash rests against the window frame, and the sash should then be fastened tightly in place by screws. To provide ventilation, a series of holes  $1\frac{1}{2}$  to 2 inches in diameter may be cut along the bottom of the sash and fitted with a tight sliding cover for closure. Basement windows and doors should not be forgotten, for cold air



H. B. Kane.



H. B. Kane, '24



entering the basement will find its way up through the house because of the chimney effect of the structure. The door leading to the attic should also be weather-stripped in order to reduce the flow of warm air upward and cold air downward from the unheated space.

Excessive opening of bedroom windows at night can produce a costly heat loss if precautionary measures are not taken. Many of the medical profession hold that people would rest better and be just as healthy if they slept in warm rooms rather than in rooms with the windows wide open. If the windows must be open at night, it is important that the bedroom door be closed tightly; even weather-stripping of the door would pay good dividends. Most bedroom doors have a large clearance at the bottom. A rug placed there would keep much cold air from entering the rest of the house. When hot-water radiators are shut off in bedrooms at night, there is some danger of their freezing in severe weather; hence they should be covered with an insulated jacket at night.

A very common source of leakage is at the eaves, where loose construction allows cold air to flow through attic spaces, lowering the temperature in the attic and increasing the rate of heat flow from the floor below to that space. In a brick structure, wooden window frames often allow considerable leakage of air. This can be remedied by the application of elastic cement between frame and brickwork to make the joint watertight as well as airtight. The tightening process can of course be carried to a point where air leakage would no longer provide sufficient draft for heaters and fireplaces, but in general experience this situation rarely occurs.

Insulation offers another opportunity to make a considerable saving in fuel. Many types of material are available. The attic space can be insulated in most instances at small expense and represents the greatest saving for the capital spent on insulation. The insulation may be applied between floor beams below the attic floor or to the underside of the roof. The former is to be preferred and usually involves less capital outlay than the latter. When insulating an attic floor, one should not forget the staircase leading thereto. Three and five-eighths inches of insulating material applied properly in this way, would reduce the heat loss through the ceiling about 90 per cent and would be productive of a 14.5 per cent saving in fuel consumption for the house.

The only method available for insulating the side walls of the house without excessive expense is to have insulating material blown into the wall spaces. This should not be done except on expert advice, since in regions where the outside temperature frequently goes below zero, there is danger of condensation of moisture in the walls unless the insulation is applied with a good vapor seal. To apply a vapor seal is practically impossible where the insulation is blown in. The vapor seal can be easily applied in a new building, and side-wall insulation is to be recommended. Proper treatment of the side walls of a building with  $3\frac{5}{8}$  inches of insulation would reduce the heat loss through them approximately 70 per cent, effecting a saving of 19 per cent in fuel.

The addition of storm sash and of insulation to the attic floor of the uninsulated house with single windows offers potential fuel savings of 44.5 per cent. If the walls are likewise insulated, the potential savings would be

increased to 63.5 per cent. The actual percentage savings will depend upon the care with which the work is done and will vary to a certain extent with individual buildings. In some, the possible savings will not be entirely reflected in the fuel bill inasmuch as the building may not have been adequately heated before the work was done, so that a portion of the potential fuel savings are expended in more nearly adequate heating and hence in greater comfort.

Aside from fuel savings, the storm sash and insulation produce greater comfort in the dwelling. The average person, in order to feel comfortable, must lose heat at the rate of 400 British thermal units an hour. At an ambient temperature of 70 degrees Fahrenheit, which is considered comfortable in the typical uninsulated home, 300 B.T.U. an hour are lost as sensible heat from the body by radiation, conduction, and convection, and 100 B.T.U. as latent heat by the evaporation of body moisture. A small reduction in radiated and conducted heat loss can, of course, be obtained if window shades are drawn at night. Storm sash raise the surface temperature of the inside glass, and insulation that of the inside walls. This increase causes a reduction in the rate of radiant heat loss from people while, at the same time, the reduced cooling effect at the wall and glass surfaces lessens the rate of air circulation and results in more nearly uniform temperature from floor to ceiling.

The combination of lessened heat loss from the body by radiation, of reduced air circulation, and of more nearly uniform room temperature produces a feeling of greater warmth at the same ambient temperature or of equal warmth at a slightly lower ambient temperature. People notice and appreciate the greater comfort produced but heretofore have not been sufficiently interested in fuel savings to set the thermostat to a lower temperature. Psychologically, many persons are not warm unless they see the thermometer at 70 degrees or higher.

Although intelligent operation and maintenance of existing heating systems offer less opportunity for fuel savings than do the procedures already discussed, some of the more important items affecting fuel consumption should be mentioned. The first question usually is, "Should the thermostat be set to a lower temperature at night?" In general, the answer is yes, although many people report that they do not save fuel by so doing. I have found a saving of approximately 5 per cent in my own home. A large number of factors beyond the scope of this paper affect the savings produced.

The basements of many dwelling houses are warmer than the main living quarters because of excessive heat losses from heaters and piping. While this heat serves some useful purpose in keeping the first floor warm, our interest in economy demands that the heating system be insulated. Aside from saving fuel, proper insulation will allow it to respond more rapidly to the demand for heat in the rooms. If the basement ceiling is not finished, however, it would not be wise to reduce the heat loss there to a point where the basement is cold in freezing weather, as the large loss of heat from the first floor into the basement will then make the former too cold for comfort.

*(Continued on page 100)*

# Steamboat Round the Bend

## *On Our Western Rivers, Conditions Set a Specially Difficult Problem for Pioneer Builders*

BY W. MACK ANGAS

CONSTRUCTION of practical steamboats for use on the tidal waters of eastern United States was a much simpler problem for the pioneers of steam navigation than was the construction of vessels for use on the Mississippi and its tributaries. The tidal currents of our eastern rivers and sounds ebb and flow. Sometimes this fact hindered and sometimes it assisted the faltering machinery of early steamboats. To succeed on the western rivers, a steamboat had to make satisfactory progress against the never-ending downstream flow of the current, yet had to possess maneuverability and light draft for the navigation of shallow and tortuous channels.

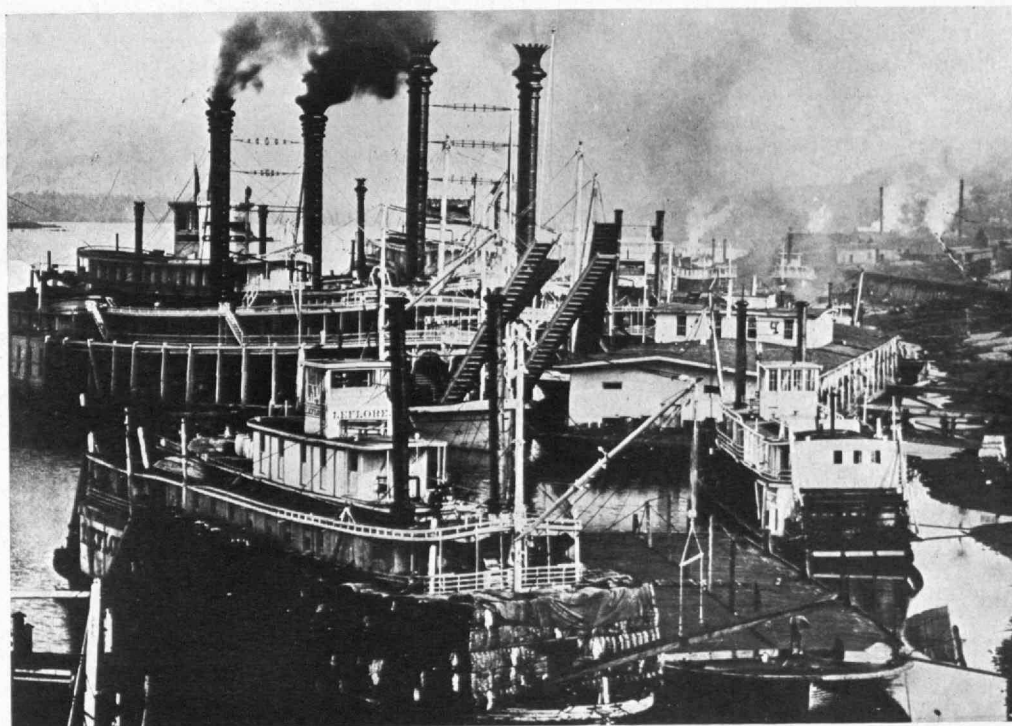
If the problem was more difficult, the rewards for a successful solution were greater. The entire Mississippi basin was a vast empire awaiting transportation to enable its development. Flatboats, rafts, and keelboats were used, it is true, to carry the produce of this great region to New Orleans, whence sailing ships took it to eastern and foreign ports; but such methods were slow, expensive, and ineffectual. The West eagerly awaited the steamboat, and it was the steamboat that made possible the winning of the West.

The first two steamboats built on the Mississippi and its tributaries were never operated commercially. The first, built by John Fitch at Bardstown, Ky., in 1797,

the year before he died, was either a very small experimental vessel or a model. The second, built in 1803 by James McKeever and Louis Valcourt, was an 80-foot steamboat. It was the intention of the builders of this vessel to place her in service on the run between New Orleans and Natchez.

The hull was constructed in Kentucky and was floated to New Orleans, where a high-pressure, or noncondensing, engine and boiler constructed by Oliver Evans of Philadelphia were to have been installed. Historians differ as to the reason for the abandonment of this promising venture, some saying that the hull was destroyed by a hurricane before the engine arrived, and others that the completed vessel was stranded by abnormally low water in the river until the funds of the partners were exhausted and they were forced to sell their machinery. At all events the engine and boiler appear to have been used successfully for some time to operate a sawmill, and the vessel itself must be classified as a might-have-been.

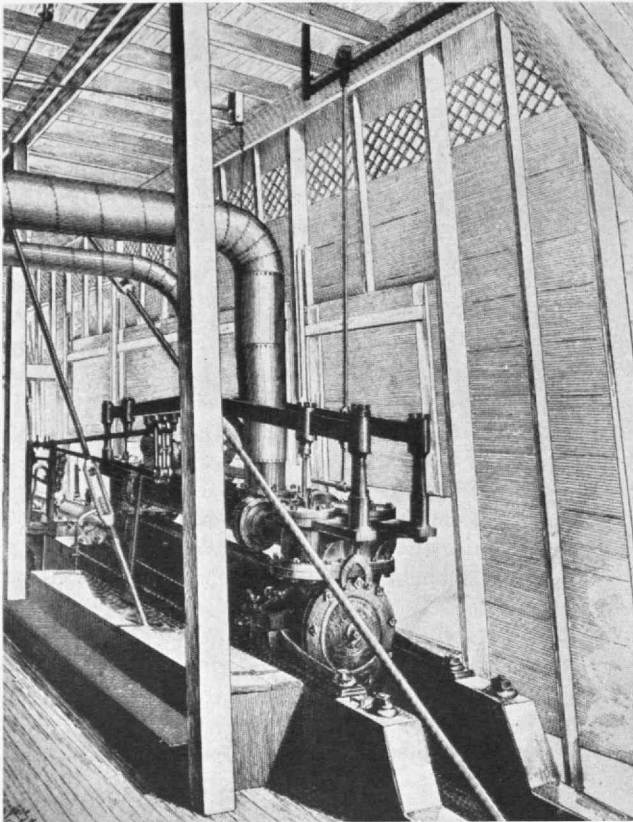
The next attempt was made by Robert Fulton in association with Robert Livingston, Edward Livingston, and Nicholas Roosevelt. This group, flushed with the success of Fulton's boats on the Hudson, believed that even greater profits could be made on the Mississippi if a monopoly similar to the one enjoyed by Fulton's



*Steamboat days on the Mississippi. The Will S. Hays, Ed. Richardson, and smaller vessels clustered about the Vicksburg wharves.*

*Steamboat Photograph Company*





Courtesy American Society of Mechanical Engineers

One cylinder of a typical western river steamboat engine — that of a stern-wheeler. Similar poppet-valve engines were used in side-wheelers. Note levers for operating the valves. The prominence of these levers gave rise to the common name of "lever engine." Connecting rods were of wood reinforced with iron bands.

company on the waters of New York State could be obtained for western operations. The division of responsibility appears to have been for Fulton to design their first Mississippi steamboat, the Livingstons to negotiate for the monopoly, and Roosevelt to investigate the channels and take charge of the actual construction and operation of the steamer.

The Livingstons failed to secure monopolistic rights on the upper river and its tributaries but finally got practically everything they wanted when W. C. C. Claiborne, governor of the territory of Orleans, granted them a patent in 1811 for the exclusive right to use steamboats on the waters of the territory. Hence their boats, and their boats only, could use the lower river and reach New Orleans. This was enough.

Roosevelt undertook in 1809 to examine the Ohio and Mississippi rivers from Pittsburgh to New Orleans. Accompanied by his wife, he started from Pittsburgh in June of that year on a flatboat manned by an experienced crew. The party reached New Orleans in December. The Roosevelts returned immediately to New York by sea, arriving in January with a report on the practicability of the steamboat scheme which was more than merely favorable; it was enthusiastic.

Not until 1811, however, was the *New Orleans* built on the banks of the Monongahela, near Pittsburgh, from Fulton's designs and under Roosevelt's supervision. She was a small steamer of the type that Fulton had used on

the Hudson, her length being 116 feet, beam 20 feet, and depth of hold about seven feet. Timber was cut locally in the vicinity of Pittsburgh, with planking of white pine. The engine was a low-pressure, jet-condensing machine of the steeple type, very like engines built by Fulton for his Hudson steamers; the bore of the single cylinder was 34 inches, the stroke probably about five feet. A shipbuilder and mechanics from New York assisted and supervised local labor in the construction of the hull and the installation of the machinery. The little vessel, which had comfortable cabins fore and aft, was rigged with two masts and sails and must have looked something like a small coasting vessel fitted with side wheels.

Roosevelt, with his wife, a captain, a pilot, an engineer, six hands, two female servants, a man waiter, a cook, and a Newfoundland dog set out in the little steamboat during September, 1811, on the long inland voyage from Pittsburgh to New Orleans. Everything went well. With the strong current of the river helping them along, they made from eight to ten miles an hour, reaching Cincinnati in two days. Stopping there only long enough to take on a supply of wood for fuel, they pushed on to Louisville, which they reached in another two days or, to be exact, at midnight on the first of October. Morning brought them the disappointing information that they could go no farther for the present because of insufficient depth of water over the "falls," or rapids, at the town.

While waiting for the river to rise, Roosevelt took the *New Orleans* back to Cincinnati, thus convincing the skeptical that the boat could go upstream. He returned to Louisville without unnecessary delay, however, in order that the falls might be run at the first favorable opportunity. Eagerly each slight rise in the river was watched and the channel depth in the rapids sounded. During the weeks of waiting, Mrs. Roosevelt became a mother. Finally, in the last week of November, the minimum depth of water in the deepest channel was found to exceed the draft of the steamboat by five inches. Roosevelt decided to risk the passage, which was made without accident. But from Louisville the trip was not without incident; a number of earthquake shocks, some of them severe, disturbed the Ohio and Mississippi valleys at this time and in some areas caused such great changes in the channel that Roosevelt's pilot became confused. New Orleans was reached at last on January 12, 1812.

Immediately after its arrival at New Orleans, the steamboat was placed in service between that city and Natchez, continuing to ply between these towns of the lower river for about two years. Her career ended on July 14, 1814, when she struck a snag near Baton Rouge and sank.

About a month before they lost the *New Orleans*, Fulton and his associates launched their second Mississippi steamboat from the ways of their Pittsburgh yard. This boat, the *Vesuvius*, was a side-wheeler 153 feet long with a beam of 28 feet 6 inches. Her depth of hold was nine feet four inches and she drew about six-and-a-half feet. Her machinery was similar to that of the *New Orleans*. The *Vesuvius* made a quick trip from Pittsburgh to New Orleans in the spring of (Continued on page 90)



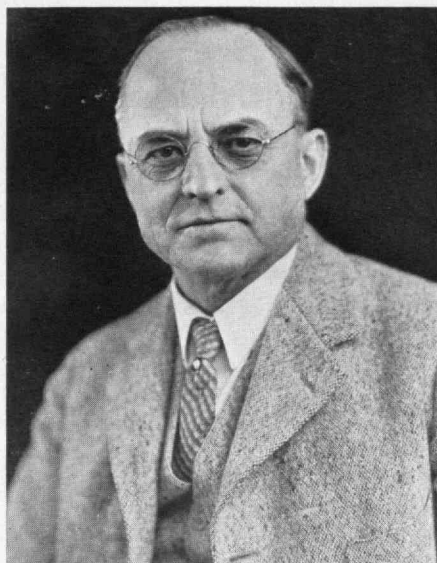
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# THE INSTITUTE GAZETTE

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PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

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WILLIS R. WHITNEY, '90  
*Recipient of the John Fritz Medal*



ROBERT E. WILSON, '16  
*Recipient of the Perkin Medal*



GERARD SWOPE, '95  
*Recipient of the Hoover Medal*

## Medalists

FOR distinguished research in the service of society, for public service in the field of social, civic, and humanitarian effort, and for outstanding work in applied chemistry, three Institute Alumni, all members of the Corporation, have been chosen for notable honors by leading professional societies of the country. The John Fritz Medal for 1943, one of the highest American engineering awards, has been given to Willis R. Whitney, '90, Honorary Vice-President and former director of the research laboratory of the General Electric Company. Gerard Swope, '95, member of the executive committee of the Institute's Corporation and recently re-elected President of the General Electric Company, is the sixth recipient of the Hoover Medal. The Society of Chemical Industry has selected Robert E. Wilson, '16, President of the Pan American Petroleum and Transport Company, the American Oil Company, and subsidiaries, and former member of the Institute Faculty, to receive the Perkin Medal.

The Fritz Medal has been awarded to Dr. Whitney "for distinguished research both as an individual investigator and as an outstanding and inspiring administrator of pioneering enterprise, coordinating pure science with the service of society through industry." Established in 1902, the medal is bestowed annually by a board representing the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers.

In addition to his life membership on the Corporation, Dr. Whitney holds the rank of nonresident professor of

chemical research in the Institute's Department of Chemistry, of which he has been a member since 1890. He is the holder of at least eight other scientific awards for his achievements as a chemist, inventor, educator, and engineer. He has received six honorary degrees in addition to those he earned at the Institute and at the University of Leipzig. Past recipients of the John Fritz Medal include Alexander Graham Bell, Thomas A. Edison, Guglielmo Marconi, Orville Wright, and Elihu Thomson, who was twice acting president of Technology between 1920 and 1923.

The citation of the award of the Hoover Medal pays tribute to Mr. Swope as an "engineer and distinguished leader of industry, ever deeply interested in the welfare of his fellowmen, whose constructive public service in the field of social, civic and humanitarian effort has earned for him the Hoover Medal for 1942." The medal will be presented to Mr. Swope at the winter meeting of the American Institute of Electrical Engineers late next month. This honor was established in 1929 to commemorate the civic and humanitarian achievements of Herbert Hoover, to whom the first award was made. It is administered by representatives of the same engineering societies which bestow the Fritz Medal.

Mr. Swope first became president of the General Electric Company in May, 1922, serving until January 1, 1940, when he resigned. Last September 18 he was re-elected when his successor, Charles E. Wilson, became vice-chairman of the War Production Board. Alumni need not be reminded of Mr. Swope's active interest in all that concerns the welfare of the Institute. He took a leading part in establishing the Technology Loan Fund, which has benefited so many students, and he has long been active in the administrative affairs of the In-

stitute. His contributions to the advancement of industrial relations include an unemployment-insurance plan for employees of the General Electric Company; the plan operated effectively until the Social Security Act made it unnecessary. In 1931 he proposed the so-called Swope Plan for stabilization of industry. This achievement and other social services brought him the gold medal of the National Academy of Social Sciences in 1932. For his work with General George W. Goethals in purchase, storage, and traffic organization for the general staff of the United States Army during the first World War, Mr. Swope was awarded the Distinguished Service Medal. France made him a chevalier of the Legion of Honor. He holds the James H. McGraw Manufacturers Medal.

The outstanding achievements in applied chemistry for which Dr. Wilson has been awarded the Perkin Medal include pioneering work in the application of chemical engineering principles in the petroleum industry. He is particularly known for important advances in the methods of oil refining. Following his graduation from the Institute in 1916, he was appointed a research associate in applied chemistry, a post which he left in 1917 to serve as consulting chemical engineer for the United States Bureau of Mines. Later he was commissioned a major in the Chemical Warfare Service of the United States Army and had charge of one of the government's research laboratories.

Dr. Wilson returned to the Institute in 1919 as director of the Research Laboratory of Applied Chemistry and later was appointed an associate professor in the Department of Chemical Engineering. He joined the Standard Oil Company of Indiana in 1922, becoming a director in 1931 and vice-president in charge of research in 1933. His election as president of the Pan American Petroleum and Transport Company came in 1937. From June, 1940, to August, 1941, he served as chief petroleum consultant to the advisory commission of the Council of National Defense and its successor, the Office of Production Management. Since then he has been a member of the Petroleum Industry War Council and chairman of its committee on petroleum economics. Last March, at the request of the United States Department of the Treasury, he became one of four managing directors of the General Aniline and Film Corporation, recently taken over from German ownership.

The Perkin Medal, founded in 1906 in honor of Sir William Perkin, is awarded by a committee representing the five chemical societies in the United States and will be presented to Dr. Wilson at a meeting at the Chemists' Club in New York on January 8. Among former recipients have been Arthur D. Little, '85, Hugh K. Moore, '97, and Warren K. Lewis, '05, as well as Willis R. Whitney.

### Alumni Day Develops

WITH the naming of subcommittees to handle the manifold arrangements necessary, D. Walter Kendall, '24, chairman of Alumni Day 1943, reports steady progress in the preparations for this year's celebration, which is to be held on Saturday, January 30, coinciding with Class Day exercises.

The two speakers at the annual Alumni Banquet at the Hotel Statler that evening will be Karl T. Compton, President of the Institute, and B. Edwin Hutchinson, '09, former President of the Alumni Association. The plan of individual alumni hosts which was inaugurated last year as a way to have the graduating class attend the banquet as guests will be in effect again.

The subcommittees this year are as follows: *Class Day*, John D. Mitsch, '20, chairman, Frederic H. Fay, '93, Gretchen A. Palmer, '18, Eugene Mirabelli, '19, and Paul M. Chalmers, staff; *dinner*, Herbert R. Stewart, '24, chairman, Arthur L. Shaw, '09, Josiah D. Crosby, '21, Larcom Randall, '21, C. Yardley Chittick, '22, and James A. Pennypacker, '23; *ways and means*, Horace S. Ford, staff, chairman, Albert V. Smith, '20, Carl M. F. Peterson, '29, and Delbert L. Rhind, staff; *registration*, Donald P. Severance, '38, chairman, Joseph C. MacKinnon, '13, Robert M. Kimball, '33, and Wolcott A. Hokanson, staff; *ladies' events*, Mrs. Leicester F. Hamilton; *publicity*, Ralph T. Jope, '28, chairman, Henry B. Kane, '24, James Donovan, '28, Frederick G. Fassett, Jr., and John J. Rowlands, staff.

### M.I.T. at Wright Field

SOME 90 officers of the Army Air Forces at Wright Field near Dayton, Ohio, where the group photograph opposite was taken October 30, are alumni or former students of the Institute. Most of them are assigned to engineering duty in the various branches and units of the experimental engineering section of the matériel center at the field. More than a score, however, are serving in various phases of industrial planning, production control, and standardization, where specialized technical skills are equally essential. Research, development, and procurement of warplanes and equipment for the Army Air Forces are functions of the matériel center. Several officers in the group studied military aeronautics at Technology back in 1918, one being the present chief of the matériel center, Brigadier General Arthur W. Vanaman.

In addition to the officers shown in the photograph opposite, whose names are listed therewith, the M.I.T. group at Wright Field includes Colonels Howard Z. Bogert, '31, whose assignment is chief, technical staff; Franklin O. Carroll, '21, chief, experimental engineering section; Frederick R. Dent, Jr., '38, aircraft laboratory; Aaron E. Jones, '18sp, chief, contract section; Ernest K. Warburton, '26, chief, flight test branch; Lieutenant Colonels Frank R. Cook, '32, bombardment branch, production engineering section; and John Van O. Weaver, '18sp, chief, follow-up branch, control section.

Majors Walter G. Bain, Jr., '36, aeronautical equipment branch, production engineering section; Jesse L. Bowling, '18sp, facilities branch, industrial planning section; Joseph Carie, '18sp, tools branch, industrial planning section; H. Morton Cronk, '22, chief, Army and Navy specifications; Ernest W. Dichman, '18sp, airplane project, production division; Francis J. McMorrow, '38, ordnance office; Samuel G. Nordlinger, '32, aeronautical equipment, production engineering section.



Captains John F. Aldridge, Jr., '39, technical staff; Samuel P. Brown, '35, facilities branch, industrial planning section; Joseph Robert Fischel, '37, aircraft laboratory, experimental engineering section; Louis Frank, '34, traffic and transportation branch, production engineering section; William C. Hutchinson, '28, follow-up branch, production control section; John F. Otis, '22, industrial planning section; Robert B. Prinz, '23, assistant district engineer; and William R. Weems, '35, equipment laboratory.

The following lieutenants: Milton A. Abel, '41, aircraft laboratory; Francis D. Atkinson, '23, armament laboratory; Walter N. Brown, Jr., '39, aircraft radio laboratory; William T. Butt, '41, propeller laboratory; Thomas A. DeMarco, '30, follow-up branch, production control section; William F. R. Griffith, Jr., '30, power plant laboratory; James F. Healey, '41, armament laboratory; Ralph M. Hunt, '41, training film production laboratory; Richard S. Leghorn, '39, aeronautical equipment branch, production engineering section; Arthur L. Lowell, '41, aircraft laboratory; Charles H.

Lutz, '30, aircraft laboratory; Conrad N. Nelson, '41, aircraft laboratory; James A. Newman, Jr., '37, follow-up branch, production control section; Teddy F. Walkowicz, '41, aircraft laboratory; Ralph S. Woollett, '39, Signal Corps maintenance section; Joseph I. Bluhm, '41, aircraft laboratory; John H. Cantlin, '42, equipment laboratory; Malcolm J. Dodd, '41, technical staff; Bernard J. Driscoll, '42, aircraft laboratory; Robert E. Hage, '40, aircraft laboratory; Robert I. Kraus, '42, aircraft radio laboratory; Norman L. Laschever, '40, aircraft laboratory; Bushnell D. Merrill, '36, equipment laboratory; Edward P. Skralskis, '39, aircraft laboratory; Charles D. Small, '38, production engineering section; Charles W. Sutherland, '31, aircraft laboratory; and Durbin A. Woolford, '39, technical staff.

### *Weather and War*

WHILE military leaders have always considered weather conditions in planning their operations, the effective use of highly mechanized equipment on a



*M.I.T. Alumni in the Army Air Forces at Wright Field, posed on the flying line with a C-54 four-engine transport in the background. Forty of the 90 officers who are M.I.T. alumni or former students were able to be present. Brigadier General Arthur W. Vanaman, '18sp, chief of the matériel center, Wright Field, is seated in the front row, extreme left. The other officers shown are, from left to right:*

*Front row: Lieutenant Colonel Frank W. Warburton, '25, aircraft laboratory; Majors Winthrop H. Towner, '32, project officer, fighter branch; William H. Dargan, '26, materials laboratory; Walter P. Muther, '13, industrial planning section; Vesper A. Schlenker, '22, planning branch; Alan P. Cummings, '24, aircraft radio laboratory; Lieutenants Maxwell H. Kaplan, '42, materials laboratory; Richard R. Heldenfels, '42, experimental engineering section; Richard P. Gillooly, '42, experimental engineering section; Henry N. Titzler, '42, aircraft laboratory; and Edward Woll, '35, power plant laboratory.*

*Second row: Lieutenants Milton K. McLeod, '35, fuel test unit; Wensley Barker, Jr., '40, power plant laboratory; Charles S. Butt, Jr., '41, experimental engineering section; Norman R. Scott, '40, Signal Corps aircraft signal service; William R. Schwindler, '41, purchase branch, contract section; Chester N. Hasert, '41, aircraft laboratory; Paul H. Keister, '39, aircraft laboratory; Gerald J. McCaul, '40, power plant laboratory; Lloyd J. Perper, '41, aircraft radio laboratory; Leigh S. Hall, Jr., '39, power plant laboratory; Charles S. Godfrey, '40, production engineering section; George Urquhart, Jr., '42, power plant laboratory; Fred F. Flowers, '41, aircraft laboratory; and Donald M. Thompson, '39, aircraft laboratory.*

*Third row: Captains Ernest A. Massa, Jr., '34, aircraft radio laboratory; David E. Irving, '38, aircraft laboratory; Gilbert G. Lorenz, '34, commanding officer, corps of engineers detachment; Samuel R. Spiker, '25, bombardment branch, production engineering section; Lieutenants Jay P. AuWerter, '38, technical staff; Benjamin Smilg, '33, aircraft laboratory; A. Rufus Applegarth, Jr., '35, aircraft radio laboratory; John A. Dodge, '39, assistant to chief, aircraft laboratory, experimental engineering section; William E. Lamar, '41, flight research projects; Mitchell J. Marcus, '41, experimental engineering section; Robert S. Williams, '41, technical staff; John Raymond Berry, Jr., '41, aircraft laboratory; Charles W. Martel, '31, aircraft radio laboratory; and David W. Whitcomb, '42, aircraft laboratory.*



global scale depends upon accurate meteorological information. Frequent weather forecasts are vital to the operation of aircraft, and weather information is extremely important in operations at sea. Moreover, the highly specialized weapons of land war have emphasized the need not only for accurate forecasts but for climatologic knowledge in planning co-ordinated operations, such as the invasion of North Africa by American forces, in which naval vessels and aircraft protected the landing operations of the huge expeditionary force. It may be assumed that all available climatologic information about that region of the Mediterranean was considered in planning and timing the invasion, and it is safe to say that meteorologists of the Army and Navy were constantly reporting advance weather information at every stage of the landing.

Although the science of weather forecasting is rapidly improving, accurate forecasting cannot be made for periods much greater than 48 hours in advance. While this type of information is of considerable value, particularly on the spot where operations are in progress, forecasting for longer periods would be extremely valuable in the planning of large-scale operations or even campaigns. Progress in techniques for long-range forecasting is being made, but they are not yet sufficiently reliable to be used in strategical planning. Climatologic information, or the average weather for a particular region for a given time of year, has great military value, however.

The importance of weather in military operations was early recognized by the United States Army Air Corps, and no small part of the Institute's enormous war effort is a program to train meteorologists for the Army, the Navy, and the United States Weather Bureau. With the completion of the meteorological course now in progress, the Institute has since 1940 trained approximately 228 weather officers for the United States Army, 51 for the United States Weather Bureau and the Civil Aeronautics Administration, and 14 naval officers. In January, 500 meteorological cadets for the Army and Navy will begin a new course leading to commissions as second lieutenants or ensigns.

When the Air Corps began to expand in 1940, the shortage of weather officers was quickly realized. Arrangements were then made for the Institute to train a small number of cadets as weather officers. In the autumn of that year, an extensive program was planned, and about 50 aviation cadets were assigned to the Institute for a nine months' course. Ten civilians were also enrolled, under the joint auspices of the Civil Aeronautics Administration and the United States Weather Bureau. Although the intention was that these civilians should take positions in the Weather Bureau, many were later released to the Army and Navy. Upon completion of this course, another was begun in July, 1941, with a registration of 60 aviation cadets and 30 civilians; and in a third — which was started in March, 1942, and completed last month — 100 aviation cadets, 11 Civil Aeronautics Administration and Weather Bureau men, and 14 ensigns were trained. This course marked the entrance of the Navy into the meteorological program, that branch of the service having previously relied on training line officers and enlisting men who had com-

pleted their preparation under the Civil Aeronautics Administration — Weather Bureau program.

The Institute's intensive course establishes a sound background of meteorological principles with a great deal of practice in analyzing weather maps and making forecasts for various regions of the world. In the application of their training in actual warfare, most of the meteorological officers are assigned to operational units, making short forecasts for their own groups or for the flight of aircraft. Some of the men are assigned to the Weather Central in Washington, which is responsible for making studies that will assist in the planning of operations in various theaters of war.

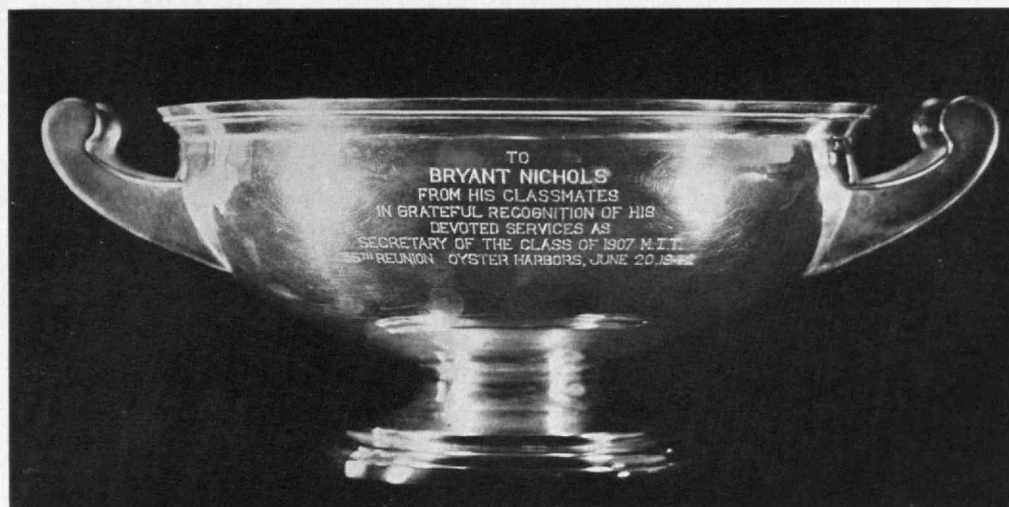
### *Recommended*

SIX specific recommendations for procedure to improve the bond of interest between Alumni and the Institute were presented to the Alumni Council at its 228th meeting — the first of the present academic year — in Walker on the last Monday of October by the Council's special committee on the problem. The committee consisted of Erwin H. Schell, '12, chairman, Stanley G. H. Fitch, '00, Azel W. Mack, '15, Richard Whiting, '26, Philip H. Peters, '37, and William R. Ahrendt, '41. Reporting on the work of the committee, Professor Schell outlined the results of questionnaires sent to council members and to a group of leading students. The report and recommendations were accepted.

Facilitating contact between the Institute and Alumni in the armed forces and putting it to constructive use are the first object sought in the committee's recommendations. Increasing contacts between Alumni and undergraduates through informal departmental meetings and alumni appearances at student professional society gatherings is the second. Consideration of a plan of second-year reunions, to be held at the time of Alumni Day, in order to aid the early cementing of alumni relationships is the third action recommended. Naming of a special committee to study the establishment of closer relationships between the Alumni Association and graduate students both in residence and thereafter constitutes the fourth recommendation. The fifth calls for encouraging the formation of local community alumni groups in suburban areas surrounding large cities. Invitation of alumni officers of New England colleges to Boston for a series of discussions whereby the activities of local clubs may be stimulated and strengthened during the war period is the objective of the final recommendation.

A considerable amount of regular business came before the Council at its meeting. D. Walter Kendall, '24, chairman of Alumni Day 1943, reported on progress of plans for the annual celebration on January 30. Henry B. Kane, '24, Director of the Alumni Fund, reported that the third year of the Fund continues to maintain the gains over last year which were shown by early returns. An increase of 10 per cent in the number of contributors, of 24 per cent in the total amount contributed, and of 13 per cent in the average contribution was listed. The net available to the Institute last year was just over \$30,000. As of September 30, the net shown as

*Designed and made by  
Leverett H. Cutten, '07,  
of Allentown, Pa., this  
silver bowl was pre-  
sented by the Class of  
1907 to its faithful  
Secretary, Bryant Nich-  
ols of Whitinsville, at  
the 35th reunion of the  
Class in June.*



available to the Institute this year was over \$46,000. Upward revision of this figure during the year was foreseen by Mr. Kane.

Arthur L. Shaw, '09, chairman of a committee comprising Chester L. Dawes, '09, and Charles E. Greene, '10, reported resolutions in memory of Charles R. Main, Secretary of the Class of 1909 and term member of the Institute Corporation from 1923 to 1928. Resolutions in memory of Charles L. Fellows, '79, representative of his Class on the Council, were presented by Emmons J. Whitcomb, '11, chairman of a committee including George A. Packard, '90, and Percy R. Ziegler, '00.

The speaker of the evening was James Holt, '19, Associate Professor of Mechanical Engineering at the Institute, who was announced as speaking on "Some of the Aspects, Calorific, Thermal and Otherwise, of the Coming Winter Season in New England Homes." Professor Holt's paper was warmly received.

### *On Student Activity*

**D**ESPITE temporary alterations of routine imposed by wartime necessities, student life at the Institute proceeds calmly. Preparation for improvements in future years is constantly under review by the Institute administration, which is assisted in this continuing study by the work of the Corporation Visiting Committee on Student Activity.\* The report which that Committee presented to the Corporation in April follows:

The Committee first considered plans which had been drawn to provide for additions to the present undergraduate dormitories. In its report dated June 6, 1941, the Committee had recommended to the Corporation "that studies already under way for physical changes in undergraduate dormitory layout and arrangement . . . be continued. . . ." A proposed addition at the north end provided for a new section connecting the north ends of the two present undergraduate dormitory groups. It would consist entirely of rooms for students' living quarters. A second addition on the west side of one of the existing undergraduate dormitory groups provided for office quarters, study rooms, music rooms, and so on, with students' living quarters on the upper floors.

\* The members of this Committee for 1941-1942 were Marshall B. Dalton, '15, chairman, Egbert C. Hadley, '14, and A. Lawrence Lowell.

Professor Leicester F. Hamilton, '14, reported success of the plan for table service for the evening meal at Walker Memorial as recommended by this Committee in its 1941 report. The plan became effective with the opening of the fall term a year ago. Professor Hamilton stated that more evening meals were being served in Walker Memorial than in 1940-1941 despite the fact that a substantial number of men who formerly ate regularly in the evening at Walker appeared there only infrequently.

Carl L. McGinnis, '42, student chairman of the Student-Faculty Committee, discussed the desirability for more social contacts between Faculty and students, and requested the assistance of the Committee toward this end. Professor Hamilton stated that invitations to evening meals at Walker Memorial had been sent to all Faculty members but that very few had appeared although a substantial number had indicated their desire to do so. The Committee were agreed that if more Faculty members and their families would voluntarily take an evening meal at Walker from time to time, it would assist toward the objective which Mr. McGinnis' committee desired to attain.

Ralph T. Jope, '28, Secretary of the Advisory Council on Athletics, again brought out the need for more equipment and building space but recognized that no action could be recommended at this time.

Lengthy discussion followed a proposal made by the Dormitory Board through Professor Hamilton, and concurred in by the Dormitory Committee, that a resident night superintendent, who would be on duty evenings, Saturdays, and Sundays, be employed for the undergraduate dormitories. It was proposed that such a man should be of sufficiently superior attainments not only to act as general superintendent but also as a leader and guide to the men living in the dormitories. The objective of the proposal was to improve the cultural standards and opportunities for undergraduate dormitory students through the activity of this proposed new officer.

As a result of the discussion which took place at this meeting, the Committee reached the following general conclusions:

(1) The Committee felt that two views might be taken regarding proposed additions to the undergraduate dormitories. The first would take the position that we should do what we could to use the present undergraduate dormitories as a basis for additional bedrooms, recreational rooms, study rooms, and so on, admitting that while this action would produce needed facilities, it would not be the better plan. The second view, in which the Committee concurred, was that perpetuation of a situation which the Committee had already concluded was unsatisfactory would be unwise, and that when the new facilities were constructed (Continued on page 101)



## SCIENTIST EXTRAORDINARY

*(Continued from page 74)*

In special mathematical and physical demonstrations, Newton was marvelously inventive, said Einstein, but he considers Newton to be a much more important figure than he would have been merely as a master of science, for he was responsible for a turning point in the world's intellectual development.

Einstein, who can appreciate Newton's true worth more fully than can the rest of us, says that Newton was aware of the weak side of his thought structure to a far greater extent than were succeeding generations of students, and that this fact excites his reverent admiration. Newton did not consider that his "laws" really gave the ultimate explanation of anything. Their value lies in the fact that they tell us not only how nature has been observed to behave but, much more important, how she can be expected to behave in a billion circumstances as yet unobserved. All mechanical, optical, thermal, acoustical, and electrical behavior rests on the laws which Newton enunciated or on new laws which have his for a foundation.

One can still visit the room where Newton was born, in a house near the village of Woolsthorpe in Lincolnshire, England. In the yard of another of his homes, the tree famed as the parent of the apple supposed to have provoked enunciation of the law of universal gravitation succumbed to a gale in 1820, but died leaving almost as many putative descendants as are now ascribed to the Washington Elm.

Regardless of the truth of the apple story, Newton was certainly not worrying about what pulled the apple to the ground so much as whether this force is the same one which keeps the moon traveling around the earth and the earth around the sun. Newton wondered whether he could treat the motion of the moon mathematically as though it were just a big apple falling toward the ground. Other people had thought of the inverse square law of gravitation, but it was Newton who tested that law and proved that it agreed with experiment not only in his back yard but out in the depths of space. Not at first, to be sure, did he reach this conclusion, for the results of his first calculations — made at the age of 22 — though entirely correct in assumption and method, showed 16 per cent disagreement with the experimental results reported by Kepler and other astronomers. Newton accordingly filed his calculations away unannounced and considered his theory disproved. Sixteen years later, on the basis of new measurements of the radius of the earth made by Picard in 1671, he re-worked his calculations and found that his guess had been correct — that the same laws govern the fall of apples and moons and, by the same token, comets and suns and galaxies.

The greatest monument which Newton left was his *Philosophiæ Naturalis Principia Mathematica*, one of the classics of science. Strictly speaking, the *Principia* is not a book but is a lengthy scientific paper which contains almost nothing except Newton's original thoughts. In it the fundamental laws of mechanics are set out for the first time, in good shape for future generations of college freshmen to worry about. This classic

was so little appreciated in manuscript form that Halley, the astronomer who discovered the most famous comet in 1682, had to finance its publication out of his own pocket.

Since Newton did not like publicity, he tried on several occasions to dissociate his name from published accounts of his work. Announcement of his invention of the calculus was withheld for 39 years, giving rise to argument later as a result of Leibnitz' discovery or invention of it independently in the meantime.

In 1666 Newton became interested in light and bought a prism to study color and its origin. He soon discovered the principal cause of defects in the telescopes of those days — the chromatic aberration which exists in every simple lens because it behaves to some extent like a prism in separating colors. Not seeing how to correct this, he invented a telescope using mirrors instead of lenses. The 100-inch telescope at Mount Wilson Observatory and the 200-inch one planned for Palomar are reflecting telescopes selected for excellence on the same reasoning propounded by Newton at the age of 23.

Newton was wrong about the refracting telescope, probably because he did not have a wide variety of glasses with which to work. If his decision that dispersion is always proportional to deviation had been true, his conclusion would have been correct. Glass-makers have been struggling ever since to make him wrong, and they are succeeding admirably. Newton also suggested that a reflecting microscope might be made, but thus far science has not found the development of such an instrument to be necessary, in view of the fact that the same purpose could be achieved by simpler means.

Newton's achievements in chemistry have been overshadowed by his other work. He made no striking discoveries in this field but was certainly a master of the subject in the form in which it then existed. His library contained many books on magic and alchemy. After he had ceased his scientific labors and become master of the mint, he enjoyed attacking chemical problems relating to metals and alloys; his major interest in chemistry in his earlier years had concerned the possibility of transmuting metals. It should be appreciated that this alchemy was really the precursor of modern chemistry. His only strictly chemical paper, "De Natura Acidorum," which is about two pages long, is a series of speculations on chemical affinity.

Until he passed middle life, Newton was but little known to the public though thoroughly appreciated by the more able of his scientific contemporaries, such as Hooke and Huygens, famous physicists, and Halley and Leibnitz, astronomer and mathematical philosopher respectively. He was elected a fellow of the Royal Society of London at 30, but the society paid only scant attention to his work. His greatness eventually became obvious to all, however, and in 1703 he was elected president of the society, the highest honor available to any British scientist in those days. He was re-elected continuously until his death in 1727. Queen Anne knighted Newton in 1705, and he served as a member of Parliament for Cambridge University for about a year.

*(Concluded on page 88)*





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## SCIENTIST EXTRAORDINARY

(Concluded from page 86)

During this time he is not known to have opened his mouth in public utterance. He was offered the mastership at Trinity College if he would join the clergy, but he could not bring himself to do so, in spite of a mystical strain in his character.

Newton's life can usefully be divided into two parts: During the first he was the affable and able scientist, struggling against poverty. During later life he carried on a series of irritating controversies and did little beyond polishing the achievements of his youth. He kept all his faculties and senses clear to a ripe old age and died leaving a comfortable fortune. But it is the young Newton whom we remember best, and down the ages the example he sets the student of today thunders, "You can never be too young to start being an able scientist."

## FROM WAR TO WORK

(Continued from page 76)

urban communities throughout the country the rate was 76 per cent. The rates for many individual cities were considerably lower than the average rates for their respective states.

With the present generation in our leading cities thus failing by as much as 50 per cent to reproduce itself, the urban population's dependence upon shifts from agricultural regions to maintain itself at current levels stood out in bold relief before we went to war. Were huge industrial developments like the Tennessee Valley Authority projected in the midst of farming regions which possess large surpluses of workers, thus absorbing supernumerary farmworkers at the point of origin, the effect would, unless counteracted by a larger urban birth rate, prove almost immediate in bringing about substantial declines in the population of many cities. Year by year the net reproduction rate in different communities, though silent and automatic in operation, has been leaving marked impress upon the regional distribution of business and industry.

Maintenance of urban populations must rest, therefore, either upon a substantial increase in urban birth rates or upon continued large-scale migration from farming sections, each possibility obviously being seriously affected by war. Cities located in regions where equilibrium has practically been attained between rural and urban populations—as in some eastern states—will find, unless they are able to attract immigrants either from distant rural regions or from near-by cities, that they have passed the zenith of their growth. Except as such communities may accelerate their natural increase through higher birth rates, they will discover within a comparatively short time that they are not growing but declining cities.

The necessity for 25, 30, or 40 per cent of the normal population wastage resulting from death, disablement, or retirement to be replenished through immigration, rather than through the maturity of a sufficient natural increase to replace such losses, creates difficult problems for our cities, both in vocational training and in attract-

ing and retaining certain types of industries. Communities with a stabilized population have been slow to recognize the peculiar advantage they possess, for, as Carter Goodrich has so ably pointed out, migration involves not merely a shift in residence but a readjustment to changing techniques, processes, relationships, and an entirely new configuration of social habits.

Cities which have industries that afford employment to unskilled help stand the best chance to attract workers no longer needed upon farms. These workers will prefer, where possible, to locate near their old homes. The distance they will move, however, depends to a considerable degree upon prevailing wage rates paid to entrants in different cities, localities where wage scales are high being naturally preferred to those where they are low.

Other things being equal, industries utilizing a large amount of unskilled labor should logically locate not in high wage centers but in the heart of regions with large surpluses of unskilled workers released from their usual tasks through changing agricultural trends. Such a location should assure them for a long term of years of a continuing supply of cheap labor at minimum wage rates unaffected by the sharp fluctuations characteristic of such rates in industrial centers. The very fact that the population in urban communities does not reproduce itself tends to fix at scarcity rates the wages for unskilled labor. In any event, the rates in large urban communities must be higher than those in rural regions in order to attract the farm laborer to the city. If the movement of industry to those agricultural regions possessing a huge surplus population should develop such a momentum that it absorbed the supernumerary population, it would dry up 25 per cent of the flow necessary in each generation to replenish the natural wastage in the population of urban communities throughout the whole United States.

One thing stands out clearly as we try to envisage the future: When the boys come home from the far corners of the world, the pattern of urban employment as well as the location of employment is going to be quite different from what it was before the paper hanger from Austria became *Führer* of the third German *Reich*. As of last June 30, for example, the National Industrial Conference Board estimates at slightly more than twenty billion dollars the commitments made and authorized by government and industry for new war plant and industrial facilities. Concentrated primarily in the production of metals and metal products for transportation and vehicular purposes, these plants and facilities not only exceed the total net book value of all plant and equipment in the metal, motor vehicle, and rubber industries just before the war but equal 60 per cent of the total peacetime manufacturing plant of the nation at the end of 1940.

Large-scale production of light metals promises revolutionary changes in the structure of the old heavy-metal industries. The impact of this development will make itself felt particularly through the introduction of lightweight alloys and also through substitution of aluminum in place of copper and brass as a basic raw material for many products. In some instances, however,

(Concluded on page 90)



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## FROM WAR TO WORK

(Concluded from page 88)

the industrial structure will be affected quite as much by the duplication of present plant facilities in different new centers as by the development of new competitive products and industries. Some new plants, though constructed as supplemental to existing organizations, will perhaps be retained as the principal plant of the organization. Then the existing plant, not the new one, will become the branch plant in the postwar period.

The defense program, according to the best available information, is providing no less than 800,000,000 square feet of floor space in new industrial buildings. Even when one makes a generous allowance for the space in special-purpose buildings of a strictly military character — plants for the manufacture of high explosives, for the loading of shells, and for other similar purposes — a minimum of 500,000,000 square feet of new competitive space will be thrown on the market for manufacturing and storage purposes upon the conclusion of hostilities. How the absorption of this space by industry is going to affect the competitive position of cities which are located in nondefense areas and which possess considerable manufacturing space in obsolete structures constitutes a serious postwar problem for hundreds of urban communities.

War has always been a form of economic convulsion and upheaval; war diverts and reroutes the energies and labor of a people not only during its continuance but long after consummation of peace. Mobilization of peacetime industry for war is a sufficiently difficult task. Yet with a single control and one clearly defined objective — production for the armed forces — the job is rather simple as compared to postwar adjustment with its scattered responsibility and infinite number of conflicting objectives and rivalries.

To disassemble a huge military establishment consisting of perhaps 10,000,000 men, to reconstitute a sound peacetime economy with full employment at maximum earning power for all, will test as never before the mettle of both national and local leaders in finance, trade, and industry. Above all, the problem will be a challenge to the average man and woman who constitute the individual units in each local pattern of employment. Even if they recognize this responsibility, many communities will face hard days ahead as a result of disintegration and chaos taking place in local employment and industry.

An intelligent organization of community action can do much not only to cushion this blow but to place a city in position to capitalize upon technological advances made during the war. But such organization predicates a high level of community intelligence. Some cynics declare that a city must strike bottom before the public will organize for action. In support of this view they call the roll of urban casualties during the depression — Cohoes and Elmira, N. Y.; Fall River, New Bedford, and Ware, Mass.; Manchester, N. H.; and Paterson, N. J. — and ask whether the people in every one of these cities did not first face stark ruin before raising a finger to retrieve practically a complete collapse of their industries.

Hence, while we are at war, determined upon victory, each city should give thought to postwar employment. When our sons return from the battlefields, they will wish to take their rightful places, not sitting on benches in employment offices or wasting their youth on made work of questionable usefulness, but working in profitable establishments producing, distributing, and selling merchandise. Every one of them will wish to earn the wherewithal necessary to maintain an American standard of life through his own initiative. This goal can be achieved. It must be achieved to win the peace. Democracy is no stronger than the pattern of its employment.

## STEAMBOAT ROUND THE BEND

(Continued from page 80)

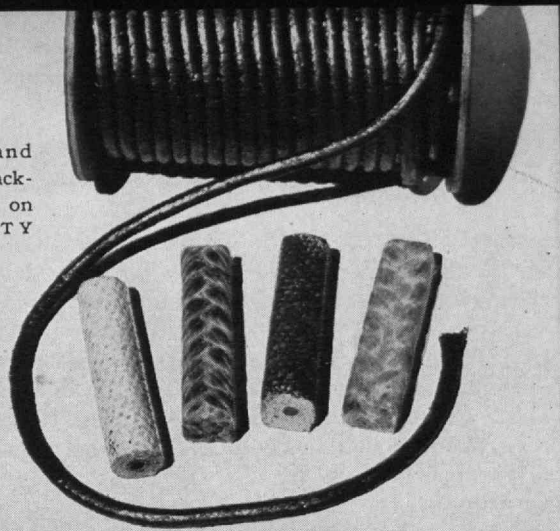
1814 and in July of that year started from the latter port for Louisville but ran aground 700 miles up the river. The water at the time was falling, so that the *Vesuvius* was not floated until December, when she returned at once to New Orleans. For a time she ran between New Orleans and Natchez. During the latter part of 1816 she caught fire and burned to the water's edge. Later she was raised, rebuilt, and put into service again. She was finally condemned in 1819. Two other similar Fulton steamboats, the *Etna* and the *Buffalo*, built at Pittsburgh, ran on the Ohio and Mississippi for a time.

None of Fulton's Mississippi steamboats, however, was completely successful. They were too slow to make satisfactory progress upstream and drew too much water to navigate the upper river when the water was low. The Mississippi was finally conquered by vessels of a radically different type.

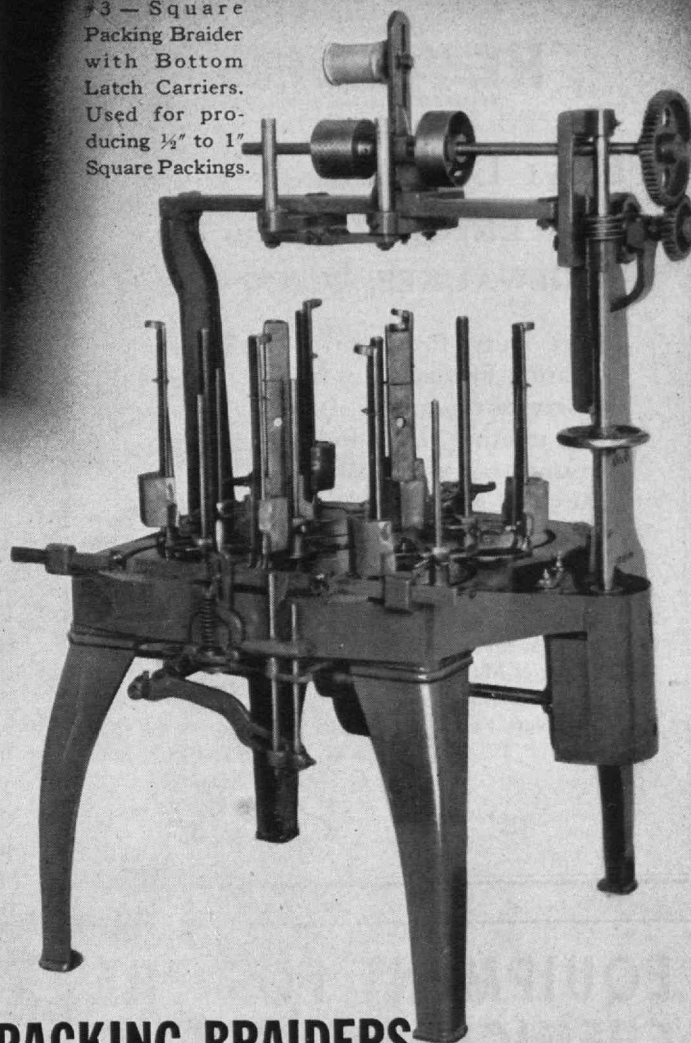
In 1813, a shallow-draft river barge owned by Daniel D. Smith was converted by Daniel French into a steamboat. He did so by mounting on it a stern wheel driven by an oscillating, noncondensing engine. The little vessel went to Louisville in the summer of 1813 and thence to New Orleans. She made a few trips between New Orleans and Natchez before she was sold, her engine being subsequently used in a cotton mill. French felt, however, that he was on the right track in using the relatively light, if uneconomical, high-pressure engine. Hence in 1814 he fitted another engine of this type to the 80-foot stern-wheeler *Enterprise*, built on the Monongahela at Bridgeport, Pa. She made two voyages to Louisville in the summer of 1814 and in December of that year commenced a voyage to New Orleans. While in the vicinity of that city, she was pressed into service by Andrew Jackson for use in the campaign which culminated in the Battle of New Orleans. In May, 1815, she returned to Louisville. This was the first time that a steamboat had ascended the river so far. At the time of the ascent, which took about 25 days, the river was in flood and out of its banks, a condition which made it possible for the vessel to avoid much of the swift current she would have had to breast consistently had the river been at a more nearly normal stage. Still, the *Enterprise* had doubtless gone upstream, and Henry Shreve, an experienced riverman who had taken an active part in the construction and operation of her, was greatly encouraged. French followed the

(Continued on page 92)

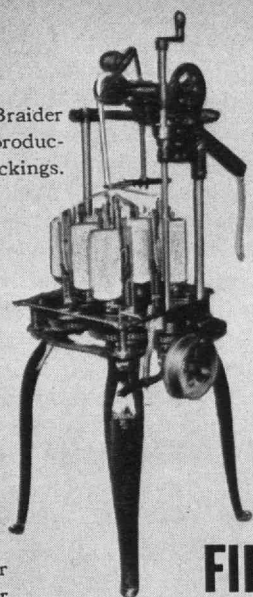
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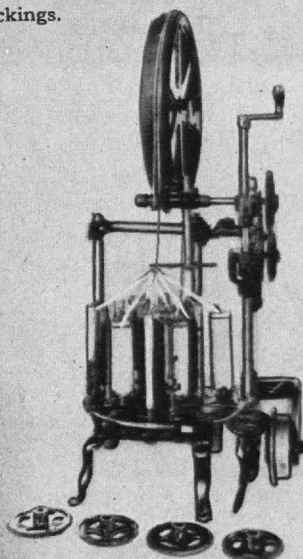
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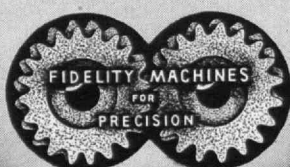
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## STEAMBOAT ROUND THE BEND

(Continued from page 90)

machinery of the *Enterprise* with a similar set for another small steamer, the *Despatch*, in 1815, but her performance was eclipsed by that of Henry Shreve's *Washington*, built at Wheeling, W. Va., the next year.

In planning the *Washington*, Shreve cast aside all precedents established by Fulton. The 148-foot hull of his boat was entirely unlike that of a sailing vessel but bore a strong resemblance to the extremely shallow, easily propelled keelboats that the hardy rivermen of early days on the Mississippi used to pole and row laboriously upstream. To drive the side wheels, a high-pressure engine of the horizontal type was used, the bore of the cylinder being 24 inches and the stroke 6 feet. Steam was supplied by a horizontal boiler or boilers fitted with return flues. Marestier reports that the engine developed 100 horsepower and weighed but 4,500 kilograms, a little less than 10,000 pounds. Both engine and boilers were mounted on deck, the boilers ahead of the engine. Though there is some evidence that the *Washington* had two unconnected engines of the dimensions given above, and four boilers, it seems more probable that a single engine was used.

Shreve's remarkable boat proved far faster and more practical for the conditions to be met on the Mississippi than did any of her predecessors. In September, 1816, she passed over the falls of the Ohio at Louisville and proceeded to New Orleans, where she was much admired. Edward Livingston at once saw that his boats were now up against real competition and, after praising the ingenuity of the *Washington's* design, said to Shreve, "You deserve well of your country, young man, but we shall be compelled to beat you in the courts, if we can."

After the *Washington's* visit to New Orleans, Shreve took her back upstream to Louisville, where ice forced her to remain at the falls until March 12, 1817, when she commenced her second voyage down the river. This second trip to New Orleans and return took 41 days, of which 25 were required for the ascent. The *Washington* thus proved that navigation of the Mississippi by steam was practical and, furthermore, that a properly designed steamboat could go upstream at least four times as fast as a keelboat could. At a dinner given in his honor at Louisville, Shreve said, "The upstream trip from New Orleans will some time be made in as short a time as ten days. We have only just begun." Shreve lived until the 1850's, during which decade the trip was made in slightly less than five days.

Although Fulton died before the *Washington* was constructed, his associates attempted to maintain the monopoly granted them by the territory of Orleans, the territory in the meantime having become the state of Louisiana. The courts refused to uphold the monopoly, however, and the river system of the Mississippi Valley was freed from legal obstacles to steam navigation. The few steamboats of the eastern river and sound type which were immediately brought to New Orleans for use on the lower Mississippi were unsuited to western conditions and never became popular.

(Continued on page 94)



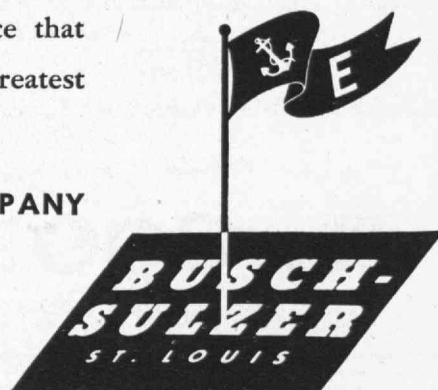
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## STEAMBOAT ROUND THE BEND

(Continued from page 92)

After Shreve demonstrated the practicability of the *Washington*, the development of the western river type of steamboat was nothing short of phenomenal. An English engineer, David Stevenson, writing of the steamboats he saw on the Ohio and Mississippi in 1838, said: "Most of the vessels at present employed have been built on the banks of the Ohio, and a few at St. Louis, on the upper part of the Mississippi, but the building yards which have produced the greatest number are those of Pittsburg and Cincinnati, on the Ohio. Pittsburg, although 2,000 miles from the Gulf of Mexico, is a place of great trade. Its population is 30,000 persons, a great part of whom are employed in the construction and management of steamboats, and some idea may be formed of the extent of their trade, when I state that I have counted no less than thirty-eight steamboats moored opposite the town in the Monongahela, all of which were engaged in plying to and from the port. . . ."

In the building of this great fleet, Shreve's ideas were closely followed. The hull of the typical western river steamboat was of wood, was almost flat bottomed, and drew from three to six feet of water. The lines of these big shallow hulls, however, were extraordinarily easy. Unfortunately the hulls of the vessels built on the Mississippi in the great days of steamboating were not "designed," as boats of similar size would be today, so that drawings showing their lines and details of construction are not available. Their builders, however, arrived at hull forms that were driven easily, as is attested by the speeds achieved. Located in a wooden superstructure, passenger accommodations in the big packets were elaborate to the point of being luxurious. The long shallow hulls of the larger steamboats, even when stiffened by hogframes, were exceedingly flexible. This flexibility had a marked effect on the development of the western river steamboat engine.

Though the engine built for Shreve's *Washington* at Brownsville, Pa., was of the poppet-valve type with a cam-operated cutoff, a number of boats that followed her had slide-valve engines. These proved troublesome, since the flexibility of the hulls caused bad valve setting. Grit carried over in the steam from the river water used as boiler feed also caused a great deal of trouble with slide valves.

The western river engine finally became fairly well standardized as a long-stroke, horizontal, poppet-valve machine of the single-expansion, noncondensing type. Oscillating cams, mounted on rockshafts over the center of the cylinder, actuated the poppet valves by means of long levers, which gave the machine its common name of "lever engine." Separate eccentrics were used in the earlier engines for cutting off the steam at full stroke or part stroke; the eccentric rods terminated in "hooks," which could be dropped over a pin in the bell crank that actuated the rockshaft operating the inlet valves. The rod in use was hooked onto the above-mentioned pin, while the other was suspended by a cord so that it could be reached easily by the engineer. During maneuvering, the valve gear was operated largely by hand.

(Continued on page 96)

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## STEAMBOAT ROUND THE BEND

(Continued from page 94)

The engineer also invariably equipped himself with a "club"—this was a hardwood stick with a wedge-shaped end which could be inserted into the valve gear, temporarily increasing the valve lift or lengthening the cutoff. As larger engines were developed, the balanced poppet valve and pilot valve were widely adopted to lessen the load on the valve gear. The pilot valve consisted of a small poppet valve in the center of the main valve, the small valve opening first and serving partially to equalize the pressure against which the main valve would be subsequently lifted. Several types of variable cutoff gear were later developed and widely used. The connecting rod, or pitman, of a western river engine was invariably of wood reinforced with iron bands.

A few early side-wheelers had single engines turning both wheels, but the greater maneuverability afforded by independent engines for each wheel soon led to almost universal adoption of them. Tandem compound engines, occasionally of the condensing type, were used experimentally on a few boats but were unpopular. Cheap fuel and the high first cost of the compound condensing engine militated against its success. Prejudice no doubt played its part, too: The old rivermen of the West liked to hear the explosive exhaust of their wasteful, but nonetheless effective, high-pressure engines.

Boilers of western river steamers were of the externally fired, return-flue type. The high pressures necessitated boilers of small diameter, and this in turn called for a multiplicity of boilers. Usual diameters were from 40 inches to 42 inches, and lengths from 24 feet to 34 feet. These long slim boilers were grouped into batteries of four or five, each battery having a common steam drum, mud drum, and stack. Boiler shells were about 1/4 inch thick, and flues were slightly thicker. All rivet holes were drilled, with double riveting in the longitudinal seams. Flues usually were two in number and 13 inches or 14 inches in diameter, though a popular alternate arrangement called for six eight-inch flues in two rows of three each. Steam pressures were, for their day, very high. Stevenson, who speaks of encountering pressures of 100 and even 138 pounds a square inch in 1838, rightly condemns the dangerous practice of temporarily increasing pressures by loading the safety valves when conditions demanded extra power. Undoubtedly this practice led to many disasters. Fortunately the passage of the steamboat inspection law and establishment of the steamboat inspection service put a stop to it.

Boiler feed pumps of early western steamers were driven by the main engine, clutches being provided to enable the wheels to be disengaged so that the engines could drive the pumps when the boat was moored at a landing. Later the use of independently driven feed pumps became universal. Known throughout the Mississippi Valley as "doctors," they were small beam engines equipped with two pumps for cold water and two for hot water. The cold-water pumps delivered river water to a heater from which the hot-water pumps forced it to the boilers through long feed pipes surrounded by the exhaust lines of the main engines. In these feed

(Continued on page 98)

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## STEAMBOAT ROUND THE BEND

*(Continued from page 96)*

pipes, the water was further heated almost to boiling. Instead of the feathering paddle wheels, which were too susceptible to damage by snags and floating timbers for successful use on the rivers of the West, the big Mississippi steam packets were fitted with side wheels. Those of some big packets were about 40 feet in diameter, and a few notable steamers had even larger wheels.

The men who handled the machinery of the big packets were a picturesque lot. In a communication published in the *Transactions* of the American Society of Mechanical Engineers, Volume XVII (1896), J. F. Holloway reported:

... I know of no more exciting scene than was often witnessed in the days of the old famous river packets, which used to ply between New Orleans and the lower Ohio River ports, when a "ten-boiler boat" was trying to make a record, or take a wharf boat-landing away from some close following rival steamer. To stand on the boiler deck at such a time on a big side-wheel boat, when in order to get ahead the pilot had made up his mind to close-shave a "tow-head," or take the dangerous chances of a new channel or new "cut-off" ... was exciting to a degree. Then it was that the two most skillful and daring engineers were called on watch, and took their stand alongside of their respective engines, stripped like gladiators for a tussle which soon came as the clanging starboard bell rang out to "slow down," and the hasty ringing of the "jingle" over the port engine meant "crack it to her." Then, as the bow of the big boat swung, all too slow to suit the emergency, or the impatience of the pilot, a stopping starboard bell would ring, quick followed by a backing one which set the engineer to wrestling with his "hooks," one of which he hangs up with a cord, and the other he picks up seemingly from somewhere on the platform. As the suddenly stopped and quivering wheel in the swift-flowing current hangs for a moment poised on the centre, the engineer, grasping his ever-at-hand club of wood, quickly thrusts it between the uprising rocker arm and the lever that lifts the inlet poppet valve, to which widened opening of the steam-valve port the engine responds with a noise of escaping steam not unlike the roar of an enraged elephant when prodded with the iron hook of his keeper. The battle of the bells, thus begun, waxes more fierce as the excitement increases. There are bells to the right, and bells to the left, and amid the discordant jangle the engineers are working like mad as they clutch the throttle valve, open or close "the bleeder," hook her one "ahead," or stop, and back, in such rapid succession that soon neither they, nor any one else, can tell how far behind the bells of the pilot they are. . . .

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With machinery of the type here described, the rivermen of the West drove the great packets of the Mississippi's "steamboat days." The boats were big and they were fast. Before 1850, Mississippi steamboats nearly 300 feet long had been built, some of which had a sustained speed in still water of perhaps 17 or 18 miles an hour. To arrive at satisfactory estimates of their speed has always been difficult, as they were never put through formal trials over measured courses with and against the current. Instead, they made and lost their reputations by the time they took to negotiate long upstream passages in regular service, a method of comparison which naturally led to differences of opinion, intense rivalry, and a few hotly contested races.

The most famous of these was the 1,218-mile race in the summer of 1870 from New Orleans to St. Louis which the *Robert E. Lee* won from the *Natchez* in 3 days 18 hours 14 minutes, at an average speed of 13.50 miles an hour. After passing Cairo, Ill., however, with the race safely in hand, the *Lee* slowed considerably, her speed to Cairo having been a little over 14 miles an hour. A far more powerful and faster packet than either the *Lee* or the *Natchez*, however, was the *J. M. White*, built at the Howard yard in Jeffersonville, Ind., in 1878. The *White* is reported to have traveled the 135 miles from New Orleans to Baton Rouge in seven hours flat, making 12 business stops on the way. Her average speed on this trip was nearly 19.3 miles an hour, without any allowance for stops. Assuming five minutes lost time for each stop — by no means a generous estimate — she must have made the trip in about six hours' running time, or at an upstream speed of 22.5 miles an hour. There can be little doubt that the *White* could do 25 miles an hour in still water and that she was one of the fastest side-wheelers ever built, if not the fastest.

The *Lee*, *Natchez*, and *White* are gone, and their like cannot be found on our western rivers today. To transport heavy freight, a new type of western river steamboat has developed. This is the towboat, which may be seen pushing great snakelike strings of barges ahead of it along the rivers over which the big packets once ran. The earlier towboats were stern-wheelers driven by typical western river machinery. In more recent years the stern-wheel towboat has been largely replaced by the tunnel-stern, twin-screw type of boat pioneered on the western rivers by Charles Ward. These boats are usually driven by modern multiple-expansion condens-

(Concluded on page 100)

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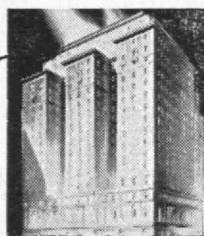
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## STEAMBOAT ROUND THE BEND

(Concluded from page 99)

ing steam power-plants or by Diesel engines. The old western river steamboat has all but vanished. The part she played in the development of America, however, should not be forgotten.

## THRIFTY WARMTH

(Continued from page 78)

Very few homeowners bother to clean the heat-transfer surfaces of their heaters except at very infrequent intervals. Coal-fired heaters require far more frequent cleaning than do those in which other fuels are used. These surfaces should be thoroughly wire-brushed each week. Soot accumulations  $\frac{1}{16}$  of an inch thick may reduce the efficiency as much as 5 per cent.

Care should be taken to prevent the uncontrolled leakage of air into the heater at firing doors, ashpit doors, cleanout doors, and assembly joints. Whereas domestic heaters under average conditions should operate with 8 to 10 per cent  $\text{CO}_2$  at the boiler outlet, the infiltration of uncontrolled air is frequently so large that it is impossible to obtain more than 4 or 5 per cent by Orsat analysis. With coal-fired boilers, the leakage at ashpit and clinker doors is often so great that the fire cannot be kept banked at night, especially in mild weather, and excessive fuel is burned, overheating the house.

In a number of the older houses in metropolitan Boston, gravity warm-air systems of poor design and construction are common. Generally, air supplied to the furnace is taken directly from outside the building instead of recirculated from within the building. Usually the systems do not operate satisfactorily. The elimination of the fresh-air connection and installation of a proper return-circulation duct have reduced fuel consumption as much as 40 per cent and made the systems operate satisfactorily. Many people are under the impression that they need the fresh-air connection for ventilation. The infiltration of air into dwellings, even those in which the foregoing precautions have been

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taken to reduce the leakage, is far more than sufficient to give proper ventilation under ordinary conditions. Many troubles with steam heating systems have been traced to faulty air valves and dirty boiler water. Air is heavier than steam and collects in the piping and radiators during the periods when steam is not being generated. It should have a free escape as soon as steam is required. In order to aid in a proper distribution of steam to the radiators, a large free vent should be used at the end of the steam main — it is often omitted entirely — and there should be an air valve on each radiator with an adjustable vent to control the escape of air freely but uniformly from all of them. Where coal is the fuel, savings can be made through the use of vacuum valves, which prevent air from entering the system during the periods when the radiators are cooling. Steam generation under a partial vacuum is thus made possible; such a system draws heat from banked fires which would ordinarily be dissipated in the basement. For vacuum valves to be effective, the entire system must be made as nearly vacuum tight as possible.

Dirty water does not circulate readily in the boiler, it insulates the heat-transfer surface with deposits, and it does not liberate steam without forcing the fire. Boilers should therefore be thoroughly flushed out at least once a season for the best results.

Practically all the principles in the economizing of fuel involve just plain common sense. If a house can be kept warm, if people can be kept comfortable, and if health can be maintained at less cost and with less inconvenience, it is merely the part of thrift to make the changes necessary to produce the result. In these times,

however, the householder who puts his wits to work to this end has the added satisfaction of knowing that he is sharing directly in the great task of winning the war.

## THE INSTITUTE GAZETTE

(Continued from page 85)

they should be carried out in accordance with the so-called house plan. A suggestion which had considerable appeal was the possibility of the erection by the Institute of a self-contained dormitory unit on the house-plan idea. It would accommodate perhaps 150 students and would be leased by the Institute to an organized group as an undergraduate club. Such a club, properly housed, would be an adaptation to the nonfraternity group of the living plans now satisfactorily carried out by undergraduate fraternities. It was concluded to be inexpedient at this time to propose any program of new student housing or remodeling of present facilities.

(2) The Committee would commend the action of those members of the Faculty who make a real effort to improve the social relationship between Faculty and students, and would urge others to participate in the effort so that the best possible relationship between Faculty and students may be developed.

(3) The Committee concluded that while it would be desirable to improve the supervision of service in the dormitories, an attempt through a resident superintendent to raise the cultural standards of undergraduate dormitory students would be artificial in character and might defeat the purpose for which it was intended. The Committee felt that if and when the physical facilities are right, improvement in cultural development will naturally follow.

(Concluded on page 102)

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## THE INSTITUTE GAZETTE

(Concluded from page 101)

### Sports

**D**ESPITE restrictions of space and time imposed by the intensive war program at the Institute, sports have suffered no lack of interest. To the traditional events of Field Day were added this year basketball and swimming, both of which were won by the sophomores. The final score gave the sophomores the victory, the freshmen winning only the tug of war and the glove fight. The football game ended in a tie, and the relay race was won by the second-year men.

On October 28 a new shell, purchased from George Pocock and received at the Institute last June, was christened the *John A. Rockwell '96* in honor of the present chairman of the Advisory Council on Athletics, who has served Technology loyally and with unabated enthusiasm since January 18, 1898, the date of the first meeting of the Advisory Council on Athletics. Professor Charles E Locke, '96, Secretary of the Alumni Association and a classmate of Dr. Rockwell, christened the new shell.

A recent addition to the Institute's coaching staff is Lincoln L. Redshaw, a graduate of Tufts College in 1937, who has been appointed coach of lacrosse, succeeding Robert H. Maddux, who resigned last spring. Mr. Redshaw, an experienced player in the positions of attack, defense, and goal, is exceptionally well qualified to teach Technology's teams. While a student at Tufts, he was selected as all-New England goalie.

### MAIL RETURNS

(Concluded from page 64)

between this upper structure and this barge's deck, are the furnace fires and machinery, open at the sides to every wind that blows, and every storm of rain it drives along its path."

The upper structure he characterized as a "frail pile of painted wood." "... One feels directly that the wonder is," he wrote, "not that there should be so many fatal accidents, but that any journey should be safely made." And so on, to the extent of three pages.

As Dickens had no scientific education, what he wrote may be taken as a joke. In 1868, on his second and last trip to America, he apologized for what he wrote in 1842!

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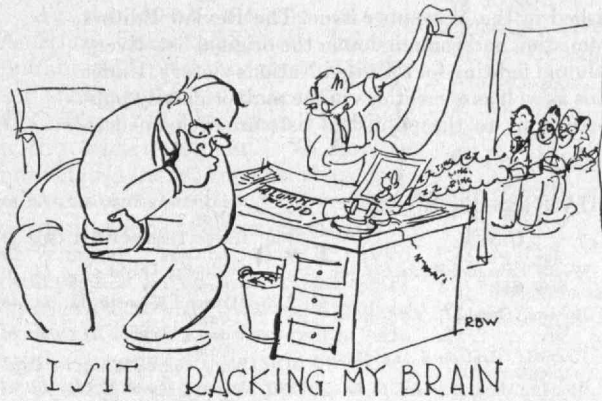
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*AN AID TO ALUMNI IN FINDING DESIRABLE POSITIONS*



# TECHNOLOGY MEN IN ACTION

THE ALUMNI FUND—ITS PROBLEMS AND GROWTH



*Travails of a Class Agent in the throes of composing a letter to his delinquent classmates*

"HERE I sit racking my brain, but somehow the little cells refuse to respond. Outside the office there's a whole flock of men waiting to see me. Most of them are salesmen with nothing to sell. One of them may even be a customer. I have work to do—but I'm going to get this letter done if it takes all day.

"WHAT can I tell them that I haven't said before? Maybe I should ask them to send in some news, put in a plug for our poor Secretary whose imagination is no better than mine. But that's not my job, really. And everybody knows we're all interested in what the rest of the gang is doing, and the only way we'll ever find out is if they tell us themselves—or do they?

"MAYBE I should tell them again to be sure and get The Review, and that the only way to do that is to kick in to the Fund. I could stress the fact that the three bucks necessary for that leaves nothing for the Institute, and that's what the Fund's for, after all. Probably I should say that we're hitting for a \$15 average—and coming closer to it every day. But I've said that so many times before!

"AND then there's all this business of bonds and taxes and what not. Those are things they don't have to be told about. But the main office has already given them a good clear explanation of where the Fund fits into that picture.

"WONDER if I could do something with the figures which show that our men in the service have a higher percentage of contributors than the alumni body as a whole? If I could only think of a good line—something like 'If they can do it, you can!' That's pretty trite, but the idea's there. That letter from Northern Australia might be useful: 'Never realized how welcome your blurbs were until I got off here in the bush, nor how

much nostalgia I could develop for the Institute's cold gray walls till I got so far away from them.'—Guess a lot of us are coming to realize more and more how important Tech has been to us. Takes a thing like this to point it up.

"As a matter of fact, I think all of us *want* to help the Institute just as much as we can. Probably the only reason I haven't heard from some of those boys so far is that they're too darn busy trying to win this war to even read my other literary masterpieces. So I guess it'll be exactly as effective if I just send them another reminder to

**"TAKE PEN IN HAND AND  
WRITE A CHECK."**

(1)



Illustrations by Royal Barry Wills, Class Agent, 1918

# TECHNOLOGY MEN IN ACTION

## M.I.T. MEN AT WAR

Each month, The Technology Review will publish additions and corrections to the list of Technology men serving in the armed forces of the United Nations which was published in the November issue. The Review Editors appreciate the many letters from Tech men reporting errors of omission and commission in the original list. Every effort is being made to maintain an accurate record of M.I.T. Alumni fighting for a United Nations victory. Under "Changes in Rank" we are including in the list recent promotions as well as corrections in the rank originally published in the November issue. Additional information and corrections to the published lists are welcomed to aid in this task.

### NEW LISTINGS

#### U.S.A.

- 1910 Cleverdon, Herbert S., *Maj.*
- 1911 Hall, Edward R., *Maj.*  
Yereance, Alexander W., *Capt.*
- 1916 Mendelson, Herbert, *Maj.*
- 1917 Williamson, Herbert C., *Maj.*
- 1920 Kahn, Harry J., *Lt.*
- 1921 Colley, William C., *Capt.*  
Horowitz, L. George, *Lt. Col.*  
Neyland, Robert R., Jr., *Col.*  
Plummer, William B., *Lt. Col.*  
Scott, John A., *Capt.*
- 1922 Freedman, Leo H., *Capt.*  
Gayley, H. Clifford, *Maj.*  
Otis, John F., *Capt.*  
Peabody, Elliott G., *Lt.*
- 1923 Atkinson, Francis D., *Lt.*  
Prinz, Robert B., *Capt.*
- 1924 Tapley, George M., *Maj.*
- 1925 Spiker, Samuel R., *Capt.*
- 1926 Wayne, Edward R., *Capt.*
- 1927 Wies, Carl H., *Lt. Col.*
- 1928 Cunningham, James C., *Capt.*  
Hutchinson, William C., *Capt.*
- 1929 Fitch, Kenneth R., *Pvt.*  
Hardwick, Sydney C., *Lt.*
- 1930 Bower, M. Maxwell, *Maj.*  
Davis, Homer L., *Maj.*  
De Marco, Thomas A., *Lt.*  
Griffith, William F., Jr., *Lt.*  
Lutz, Charles H., *Lt.*  
Perkins, Alvah E., *Maj.*
- 1931 Martel, Charles W., *Lt.*  
Price, Robert M., *Lt.*  
Puffer, Robert T., *Lt.*
- 1932 Devlin, Parker H., *Capt.*  
Hall, William P., *Lt.*  
Powell, Edwin B., Jr., *Lt.*  
Robert, Paul A., *Lt.*  
Townner, Winthrop H., *Maj.*
- 1933 Gabar, Harry W., *Lt.*  
Smilg, Benjamin, *Lt.*
- 1934 Gans, Frederick C., *Lt.*  
Hayden, Thomas M., *Lt.*  
Humphreys, Henry D., *Capt.*
- 1935 McLeod, Milton K., *Lt.*  
Oshry, Harold M., *Capt.*  
Temple, Leon E., Jr., *Pvt.*
- 1936 Mackiernan, Douglas S., Jr., *Capt.*
- 1937 Dreissigacker, Philip H., *Lt.*  
Newman, James A., Jr., *Lt.*
- 1938 Coile, Russell C., *Capt.*  
Mehren, Bernard W., *Pvt.*  
Rugo, Severino J., *Lt.*  
Small, Charles D., *Lt.*  
Wilson, John A., Jr., *Capt.*
- 1939 Graham, Walter K., *Lt.*  
Keister, Paul H., *Lt.*  
Morningstar, Otto, *Lt.*  
Morobito, Sylvester, *Pvt.*  
Woollett, Ralph S., *Lt.*  
Zeitlen, Joseph G., *Lt.*  
Arnold, James A., *Lt.*
- 1940 Adler, Louis  
Blattenberger, John W., *Lt.*  
Daniel, John H., *Lt.*  
Laschever, Norman L., *Lt.*  
McCaul, Gerald J., *Lt.*  
Monell, Donald F., *Lt.*  
Sutherland, Charles W., *Lt.*  
Zeamer, Jay, Jr., *Lt.*
- 1941 Flowers, Fred F., *Lt.*  
Hansel, John E., *Lt.*  
Hasert, John C., *Lt.*  
Little, Ernest L., *Lt.*  
Lowell, Arthur L., *Lt.*

Nelson, Conrad N., *Lt.*  
Nolen, Jake T., *Lt.*  
Perper, Lloyd J., *Lt.*  
Poor, Roger H., *Corp.*  
Sauer, Charles W., *Lt.*

- 1942 Andrew, Laurence C., Jr., *Pvt.*  
Barnett, James M., Jr.  
Brach, Herbert  
Cantlin, John H., *Lt.*  
Crosby, Robert H., Jr., *Lt.*  
Driscoll, Bernard J., *Lt.*  
Gartland, Edward V., Jr., *Lt.*  
Plummer, Arthur W., *Lt.*  
Russum, Leonard W., *Lt.*  
Sawyer, James H., Jr., *Lt.*  
Schmidt, Richard S. G., *Pvt.*  
Towle, Philip H., *Lt.*  
Urquhart, George J., *Lt.*  
Van Tuyle, Robert W., *Capt.*  
Wengeroth, Reece H., *Lt.*  
Whitman, John A., *Lt.*  
Willcox, Roger  
Wood, Harry P., *Cadet*  
Woodbury, Max A., *Lt.*

#### U.S.N.

- 1912 Tillinghast, James A., *Lt.*
- 1916 Patten, David L., *Lt. Comdr.*
- 1917 Brown, Willard C., *Comdr.*
- 1920 Hennessy, Daniel J., *Lt.*
- 1922 Halpin, John F., *Lt. Comdr.*  
Truslow, James L., *Lt. Comdr.*
- 1926 McLellan, Thomas A., *Lt.*
- 1927 Forbes, James E., *Lt.*
- 1928 Kales, Robert G., *Lt.*  
Morse, James S., *Lt.*
- 1929 Yates, Edward A., *Lt.*
- 1931 Truax, Harmon J., *Lt.*
- 1933 Kingsland, Lawrence C., *Lt.*
- 1934 Knox, David D., *Lt.*
- 1935 Daley, Walter R., *Lt.*  
Lawrence, Richard, *Ens.*
- 1936 Tobey, J. Lawrence, *Ens.*
- 1938 Crocker, Frederic P., *Cadet*  
Ewing, Lloyd R., *Ens.*  
Gere, Brewster H., *Lt.*
- 1940 Reid, James H., *Ens.*  
Smith, Arnold R., *Ens.*
- 1941 Gilmer, Peter E., *Lt.*  
Gladding, Preston R., *Ens.*  
Poskus, Alexander S., *Ens.*  
Scott, Benjamin C., Jr., *Cadet*
- 1942 Bushey, Francis B., *Ens.*  
Canney, Frank C., *Ens.*  
Harvey, Herbert F., *Ens.*  
Lambert, David, *Lt. Comdr.*  
McAndrew, Robert G., Jr., *Ens.*  
McGinnis, Carl L., *Cadet*  
Meley, Everett L., Jr., *Ens.*  
Miller, John W., Jr., *Ens.*  
Owen, Robert I., *Ens.*  
Pepper, Edward L., *Ens.*  
Pinney, Frank L., Jr., *Lt.*  
Redding, Edward M., *Lt.*  
Slack, Leslie M., *Lt.*  
Stamper, David W., *Cadet*  
Stewart, Pearson H.

#### U.S.C.G.

- 1936 Hastings, Joseph M., *Ens.*

#### U.S.M.C.

- 1942 Hassey, John T.  
O'Brien, Dalton G., *Capt.*

#### Canadian Army

- 1942 Allan, John D., *Lt.*

### CHANGES IN RANK

#### U.S.A.

- 1911 Weeks, Lawrence B., *Lt. Col. to Brig. Gen.*
- 1915 Robison, Gerald B., *Lt. Col. to Col.*
- 1917 Kennedy, Grafton S., *Lt. Col. to Col.*  
Moody, Alvah E., *Maj. to Lt. Col.*  
Platt, John C., *Lt. Col. to Col.*  
Roberts, Claudius H. M., *Maj. to Lt. Col.*  
Schoonmaker, Lucas E., *Lt. Col. to Col.*  
Stribling, Simpson R., *Lt. Col. to Col.*
- 1920 Castor, Amasa H., *Capt. to Maj.*  
Van Volkenburgh, Robert H., *Lt. Col. to Brig. Gen.*
- 1921 Carroll, Franklin O., *Lt. Col. to Col.*  
Donovan, Richard, *Brig. Gen. to Maj. Gen.*
- 1922 Cronk, H. Morton, *Capt. to Maj.*  
Hoge, William M., *Maj. to Brig. Gen.*  
Levy, Will I., *Lt. Col. to Col.*
- 1924 Cummings, Alan P., *Capt. to Maj.*  
McSherry, Frank J., *Capt. to Brig. Gen.*
- 1925 Warburton, Frank W., *Capt. to Lt. Col.*
- 1926 Bomar, Ernest C., *Maj. to Col.*  
Warburton, Ernest K., *Capt. to Col.*
- 1927 Peters, Jack B., *Lt. to Capt.*  
Tedford, Charles H., *Lt. to Capt.*
- 1928 Linebaugh, John E., *Maj. to Lt. Col.*  
Peirce, John B., *Maj. to Lt. Col.*
- 1931 Bogert, Howard Z., *Maj. to Col.*
- 1932 McLaughlin, Edmund F., *Lt. to Capt.*  
Nordlinger, Samuel G., *Capt. to Maj.*
- 1933 Forbes, Henry W., *Pvt. to Lt.*  
Madsen, Ingvald E., *Lt. to Maj.*
- 1934 Frank, Louis, *Lt. to Capt.*  
Massa, Ernest A., Jr., *Lt. to Capt.*  
Shepherd, Daniel F., *Lt. to Capt.*  
Wetherill, Proctor, *Lt. to Capt.*
- 1935 Powers, William F., *Lt. to Lt. Col.*  
Weeks, William R., *Lt. to Capt.*
- 1936 Easton, John A., Jr., *Lt. to Capt.*  
Musschoot, Albert, *Lt. to Capt.*  
Wagner, Jean I., *Lt. to Capt.*
- 1937 Fischel, J. Robert, *Lt. to Capt.*  
Levy, George M., *Lt. to Capt.*
- 1938 Dent, Frederick R., Jr., *Capt. to Col.*  
Irving, David E., *Lt. to Capt.*

McMorrow, Francis J., *Lt. to Maj.*

- 1939 Hayes, Thomas J., III, *Capt. to Lt. Col.*  
Lindberg, David N., *Lt. to Capt.*  
Madsen, Kenneth E., *Lt. to Capt.*  
Vincent, Wilbur D., *Lt. to Capt.*  
Wark, Judson W., *Lt. to Capt.*
- 1940 Jeffers, Joseph C., Jr., *Lt. to Capt.*  
Knight, Joseph K., *Sgt. to Lt.*  
Stockert, Robert H., Jr., *Pvt. to Lt.*
- 1941 Brannan, John H., *Lt. to Capt.*

#### U.S.N.

- 1905 Furer, Julius A., *Capt. to Rear Adm.*
- 1915 Brand, Charles L., *Capt. to Rear Adm.*
- 1917 Sherman, Forrest P., *Comdr. to Capt.*  
Sullivan, William A., *Comdr. to Capt.*
- 1919 Wilson, Henry E., *Comdr. to Capt.*
- 1928 Woodbury, Robert S., *Lt. Comdr. to Comdr.*
- 1932 Pfingstag, Herbert J., *Lt. to Lt. Comdr.*
- 1933 Ruble, Richard W., *Lt. to Lt. Comdr.*
- 1937 Fitch, Conover, *Ens. to Lt. (j. g.)*
- 1938 Bradford, Louis M., *Ens. to Lt. (j. g.)*
- 1940 McEwen, Lawrence C., Jr., *Ens. to Lt. (j. g.)*
- 1941 Schaeffer, Richard T., *Ens. to Lt. (j. g.)*

### RANK NOT PREVIOUSLY PUBLISHED

- 1930 Smith, Charles A., Jr., *Capt., U.S.A.*
- 1941 Harris, William J., Jr., *Lt., U.S.A.*  
Whitney, Charles B., *Capt., U.S.A.*
- 1942 Price, Myron E., *Sgt., U.S.A.*  
Cavanaugh, David J., *Ens., U.S.N.*  
Small, Richard B., *Ens., U.S.N.*

### CASUALTIES

- 1934 † Bateman, Edward L., Jr., *Capt., So. African Army*
- 1936 \* Gardiner, John D., *Capt., U.S.A.*
- 1937 † Bartlett, David B., *Lt., U.S.A.*
- 1940 † Bernd, Peter P., *Capt., U.S.A.*  
† Pollak, Edward G., *Ens., U.S.N.*  
† Teich, Lawrence, *Lt., U.S.A.*
- 1941 \* Bird, John R., *Capt., U.S.A.*

★ Killed in Action.

\* Died in Service.

† Reported Missing in Action.

‡ Reported Captured.



## ALUMNI AND OFFICERS IN THE NEWS

*Chemical Society Speakers*

At the 104th meeting of the American Chemical Society, held in Buffalo in September, these Alumni and staff members were heard:

¶ CHESTER E. LINSKOTT '18, who with J. McGavack and J. W. Haeefe presented a paper on the properties of a new crude rubber at the meeting of the division of rubber chemistry.

¶ WILLARD M. MOBLEY '21, who presented a paper on "Blending of Southern Coals for the Production of Foundry Coke," at a symposium held by the gas and fuel division on "Uses of Coal by Various Industries."

¶ REGINALD L. WAKEMAN '26, who with B. H. Weil gave a paper on coal as a source material for the rapidly expanding plastics industry, at the symposium on "Uses of Coal by Various Industries."

¶ WILLIAM C. ROUSSEAU '36 and MARGARET H. HUTCHINSON '37, who presented a paper on "Liquid Capacity of Bubble Cap Plates" before the division of petroleum chemistry.

¶ JOHN W. WILSON, JR., '39, who with J. C. Dean and R. J. De Gray gave a paper on "A Study of Light Colored Petroleum Products Photoelectric Color, Part II," before the petroleum division.

¶ ANDREW L. JOHNSON, staff, who discussed the fabrication of ceramic ware from the colloid-physical standpoint at the symposium of the division of colloid chemistry.

*Penning*

¶ BY FREDERIC W. LORD '93, a pamphlet entitled "The Negotiated Contract: A Proposed Method for Awarding Government Construction Contracts."

¶ BY PAUL M. PAINE '04, *Oil Property Valuation*, Wiley.

¶ BY EMORY S. LAND '07, rear admiral, "Men and Ships — Today's Unbeatable Team," *Foreign Commerce Weekly*, October 24.

¶ BY ALFRED HERCKMANS '25, "A New Telephone Set for the Hard of Hearing," *Bell Laboratories Record*, October.

¶ BY JOHN B. WILBUR '26, "Beams of Variable Moment of Inertia, the Computation of Fixed End Moments, Side Sway Moments, Stiffnesses and Carry-over Factors," *Journal of the Boston Society of Civil Engineers*, October.

¶ BY WILLIAM BEARD '28, *Regulation of Pipe Lines as Common Carriers*, Columbia University Press.

¶ BY CHARLES A. FELKER '29, *Shop Mathematics*, Bruce.

¶ BY JACK DELMONTE '34, *Plastics in Engineering*, Penton.

¶ BY JOHN WULFF, staff, *Powder Metallurgy*, American Society for Metals.

*Hats Off*

¶ TO RICHARD E. SCHMIDT '87, for a resolution by the Illinois Society of Architects honoring him for his excellent administration of the office of commissioner of buildings in Chicago.

¶ TO JULIUS A. FURER '05, rear admiral, JEROME C. HUNSAKER '12, and RAY P. DINSMORE '14, for being chosen by Donald M. Nelson as members of a committee of engineers and scientists to determine the manner in which the projected Office of Technical Development should be set up within the War Production Board, and to define the scope, functions, and method of operations of that office.

¶ TO BRADLEY DEWEY '09, for being named deputy rubber director under William M. Jeffers. He will be the key technical man in the administration of the nation's critical rubber supply. RAY P. DINSMORE '14, WILLIAM L. CAMPBELL '15, and EDWIN R. GILLILAND, staff, are on the committee of technical consultants under Colonel Dewey.

¶ TO CLARENCE A. WOODRUFF '11, for his appointment as deputy director of the War Production Board for New England. Mr. Woodruff will be in charge of production services and small war plants activities.

¶ TO CHARLES G. MAIER '14, for his appointment to the supervisory staff of the Battelle Memorial Institute, Columbus, Ohio. Mr. Maier will direct and correlate an enlarged program of fundamental research and will serve as adviser and consultant for the institute's war research program.

¶ TO FRANK R. CREEDON '18, for being named by William M. Jeffers as assistant deputy rubber administrator in charge of new plant construction.

¶ TO EDWARD L. COCHRANE '20, captain, for his appointment by Frank Knox, Secretary of the Navy, to the post of chief of the Bureau of Ships.

Captain Cochrane succeeds ALEXANDER H. VAN KEUREN '07, rear admiral, who is now director of the United States Naval Research Laboratory at Anacostia, D.C.

¶ TO BENJAMIN W. THORON '22, for his appointment as director of the division of territories and island possessions of the Department of the Interior.

¶ TO JOHN C. LESLIE '28, for being chosen as a member of the committee on operating problems of the National Advisory Committee for Aeronautics.

¶ TO WILLIAM H. BARKER '32, for his appointment by the Office of Price Administration as chief of the tire rationing division for the state of Rhode Island.

¶ TO LILLIAN C. MAYNARD '39, for being selected as health education director of the Virginia Tuberculosis Association.

*Applause*

¶ TO ALDEN H. WAITT '14, brigadier general, who addressed civilian defense workers at a rally in Medford, Mass. General Waitt spoke on the need for American civilians to be prepared for any type of enemy attack.

¶ TO SIMON FREED '20 and EUGENE RABINOWITCH, staff, who discussed the spectra and structure of ion complexes at a conference on spectroscopy held at the University of Chicago.

¶ TO AVERY A. MORTON '24, who spoke on "The Sodium Atom and Organic Compounds, Its Orientation and Reactivity," at the faculty and graduate colloquium held at the Polytechnic Institute of Brooklyn on November 25.

*Welding Prizes*

Eight Alumni received prizes in the \$200,000 progress award program of the James F. Lincoln Arc Welding Foundation, Cleveland, Ohio. H. MALCOLM PRIEST '12 received \$2,700. Smaller prizes were given to BURLING D. WELLS '17, JAMES B. FORD '21, ROBERT N. TUCKER '28, HAROLD W. STRAAT '29, NORMAN D. SCHULZE '32, HUGH S. KNERR '36, and DAVID S. McLELLAN '37. Among the judges were RICHARD G. DUKES '94, ALLISON BUTTS '13, OSCAR W. MUCKENHIRN '37, and HERBERT B. DWIGHT, staff.



## DEATHS

\* Mentioned in class notes.

- ☞ CHARLES L. FELLOWS '79, October 3.
- ☞ RICHARD P. BORDEN '86, September 23.\*
- ☞ ALICE G. BRYANT '86, July 25.\*
- ☞ CHARLES F. RICHARDSON '86, September 8.\*
- ☞ DAVID VAN ALSTYNE '86, June 8.\*
- ☞ BENJAMIN G. BUTTOLPH '88, October 16.\*
- ☞ WILLIAM R. PEYTON '90, May 28.\*
- ☞ S. RODMAN SNELLING '90, November, 1941.\*
- ☞ FREDERICK W. SWANTON '90, July 21.\*
- ☞ JOHN H. TOWNE '90, September 29.\*
- ☞ WILLIAM H. ADAMS '91, October 26.
- ☞ FRANCIS ALGER '92, February 18.\*
- ☞ WILLIAM BRADEN '92, July 18.\*
- ☞ GEORGE E. DADMUN '92, June 18.\*
- ☞ GEORGE S. KEYES '92, May 5.\*
- ☞ DANIEL F. POTTER '92, March 6.\*
- ☞ JAMES H. SLADE '92, April 29.\*
- ☞ EDMUND Q. SYLVESTER '92, September 22.\*
- ☞ WILLIAM E. NORTHEY '93, November 8.
- ☞ JAMES McCABE '94, May 7.
- ☞ FRANCIS E. FAXON '95, September 13.\*
- ☞ JOSEPH H. KNIGHT '96, November 3.
- ☞ GEORGE A. FULLER '97, October 8.
- ☞ JOHN H. HOWLAND '97, October 11.\*
- ☞ RAYMOND H. DANFORTH '98, August 30.\*
- ☞ WILLIAM B. KING '99, October 11.
- ☞ HENRY K. HOOKER '02, October 28.
- ☞ JOSEPH PHILBRICK '02, October 18.\*
- ☞ FRED A. POOLE '02, November 5.
- ☞ LLEWELLYN BIXBY '04, January 26.\*
- ☞ FREEMAN N. BULL '04, May 12.\*
- ☞ WALTER T. KEEN '04, October 18, 1941.\*
- ☞ WILLIAM N. TODD '04, July 18.\*
- ☞ WILLIAM S. GOVINLOCK '05, October 11.
- ☞ FRANK W. FRIEND '07, October 17.
- ☞ MILTON S. CLARK '09, October 4.
- ☞ HERBERT H. SUTTON '09, August 20.
- ☞ CARL H. MORRILL '12, October 13.
- ☞ GUY K. CALHOUN '13, February 21.
- ☞ JAMES A. JUDGE '14, October 25.\*
- ☞ CARL N. HAND '17, September 18.\*
- ☞ OLCOTT S. PAYSON '30, June 17.\*
- ☞ ERSKINE R. KELLY '34, February 15.
- ☞ JOHN D. GARDINER '36, October 30.
- ☞ JOHN B. LEES '38, August 16.
- ☞ DAN D. CLARK '40, September 5.
- ☞ JOHN R. BIRD '41, October 31.

## ALUMNI ASSOCIATION

of the

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

#### OFFICERS

*President*, FRANCIS A. BARRETT '24 (Term expires June 30, 1943)  
*Vice-Presidents* { HAROLD BUGBEE '20 (Term expires June 30, 1943)  
 EDWIN D. RYER '20 (Term expires June 30, 1944)  
*Secretary*, CHARLES E. LOCKE '96 (Term expires June 30, 1943)  
*Treasurer*, RALPH T. JOPE '28 (Term expires June 30, 1943)

#### Executive Committee

THE PRESIDENT, VICE-PRESIDENTS, SECRETARY, AND TREASURER

HERBERT S. CLEVERDON '10 (Term expires June 30, 1943)  
 C. YARDLEY CHITTICK '22 (Term expires June 30, 1943)  
 ARTHUR L. SHAW '09 (Term expires June 30, 1944)  
 EZRA F. STEVENS '27 (Term expires June 30, 1944)

#### TERM MEMBERS OF THE CORPORATION

##### Nominated by the Association

|                           |                         |
|---------------------------|-------------------------|
| TERM EXPIRES JUNE, 1943   | TERM EXPIRES JUNE, 1945 |
| HARRY P. CHARLESWORTH '05 | PAGE GOLSAN '12         |
| DONALD G. ROBBINS '07     | EGBERT C. HADLEY '14    |
| MARSHALL B. DALTON '15    |                         |

|                         |                         |
|-------------------------|-------------------------|
| TERM EXPIRES JUNE, 1944 | TERM EXPIRES JUNE, 1946 |
| PHILIP W. MOORE '01     | GEORGE J. MEAD '16      |
| CHARLES EDISON '13      | ROBERT E. WILSON '16    |
| HAROLD B. RICHMOND '14  | EDWARD P. BROOKS '17    |

##### TERM EXPIRES JUNE, 1947

B. EDWIN HUTCHINSON '09  
 DUNCAN R. LINSLEY '22  
 RICHARD L. BOWDITCH '23

#### National Nominating Committee

##### TERMS EXPIRE ON APRIL 14 OF YEAR INDICATED

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| TERM EXPIRES 1943                     | TERM EXPIRES 1944                   |
| District 2: STANLEY W. HYDE '17       | District 8: CHARLES A. SMITH '99    |
| District 4: KENNETH M. CUNNINGHAM '22 | District 9: WINTER DEAN '21         |
| District 5: CHARLES P. FISKE '14      | District 10: EDWARD E. SCOFIELD '19 |

##### TERM EXPIRES 1945

District 3: FREDERICK D. MURDOCK '13  
 District 6: GEORGE W. SPAULDING '21  
 District 7: SHERRY O'BRIEN '17  
 District 1: CHARLES E. LOCKE '96, *Acting Chairman*

The condensed directory above lists Alumni Association officers, term members whom Alumni elect to the Corporation of the Institute, and the National Nominating Committee of the Association, whose function is the presentation of candidates for these and other offices. Alumni who would offer suggestions, criticism, comment, on Association affairs or on the mutually helpful relationship existing between the Association and the Institute may wish to communicate with individuals here named. Their postal addresses will be supplied by The Review upon request, or letters addressed to them in care of The Review will be forwarded promptly.

## NEWS FROM THE CLUBS AND CLASSES

## CLUB NOTES

*Detroit Technology Association*

This year the monthly dinners of the Association will take on additional meaning. In times of stress, groups of men having mutual thoughts and interests are drawn closer together. There are many Technology men in the armed forces in and around Detroit. Many of these are ordnance and material procurement officers. The local civilian Alumni feel that they have a duty and a privilege to entertain the service men, so invited them to the first meeting of the season, held on October 20 at the University Club, 1411 East Jefferson Avenue, Detroit. Fifty Alumni, including a dozen in uniform, and three guests were present.

Major J. B. Moran, who is in charge of officer procurement in the Detroit area, spoke on the functions of the various branches of the Army. He also told what training and experience the Army is looking for in officer material. He read several recent bulletins which list qualifications for needed men. A long formal question period and a longer informal period followed the talk. Everyone left feeling that this had been a most interesting and instructive meeting. — JOHN E. LONGYEAR '26, *President*, Detroit Edison Company, 2000 Second Avenue, Detroit, Mich.

*Technology Club of New York*

The annual golf tournament has become the outstanding event of the Club's summer season. This year it was held on September 10 at the Tamarack Country Club in Greenwich, Conn. Although the attendance was limited by the fact that many members are in the services or are preoccupied with important war work, those who were able to come were unanimous in their verdict that the event was as successful as any of its predecessors.

The competition for the President's Cup resulted in a tie for low gross between Bill Keplinger '24 and Jimmy Walker '26, but on the play-off Walker captured the cup for the third time in this series of annual contests. Jack Zimmerman '23 carried away the honors of third low gross, followed closely by George Dandrow '22.

For low net score, Bill Mueser '22 took first place, and Bill Neuberg '17 was second. Asher Weil '01 nosed out Henry Martin '11 in a terrific putting duel. The prize for putting went to Bill Correale '24, while Stan Reynolds '20 captured the prize for the member coming the longest distance for the dinner. To the well-known James C. Duff '86, who never misses a Technology Club of New York affair, went a special prize for being the oldest youngster at the outing.

Swimming and bridge were followed by a grand dinner, which closed the festivities. Last year's golf champion, Buzz Burroughs '20, could not defend his title because he is now working for Uncle Sam, as are many other former contestants. Telegrams were received from Al Glasett '20, Bill Pinkham '22, and others who normally would have been with the group for this occasion. — WILLIAM D. NEUBERG '17, *Secretary*, 24 East 39th Street, New York, N.Y. CONSTANTINE S. DADAKIS, *Publicity Committee*, 644 Riverside Drive, New York, N.Y.

*M.I.T. Club of Western Pennsylvania*

The initial meeting of the 1942-1943 season was held on October 15. This was the best attended of any club function since prior to the late depression. Such a beginning lends much encouragement to the organization, particularly during a period when our ranks are considerably depleted by war demands. Ralph M. Ferry '12, *President*, took charge of the meeting, which was held in the form of a dinner at the University Club. Bernhard Ragner, a former newspaper correspondent with 20 years' experience in Europe, addressed the members, giving a most interesting account of the economic and social conditions and attitudes of the belligerents before and after hostilities commenced.

Over half of the active membership returned the cards sent with the meeting announcement, and 43 members from 32 different classes, starting with 1897, were present. Attendance at the regular Friday noon luncheons in the Norse room of the Fort Pitt Hotel has been well sustained, and all Alumni are urged to drop in. An informal meeting is scheduled for December. — FRED W. WATERMAN, JR., '25, *Secretary*, Carnegie-Illinois Steel Corporation, 1304 Carnegie Building, Pittsburgh, Pa. GILBERT N. REED '23, *Membership Secretary*, Westinghouse Electric and Manufacturing Company, 1210 Union Bank Building, Pittsburgh, Pa.

*Technology Club of Rochester*

The annual meeting of the Club was held at the Rochester Yacht Club on Saturday, October 3. The early arrivals amused themselves with games arranged by Greg Smith '30, who was chairman of the entertainment committee. At the business meeting which followed the excellent dinner, the Secretary presented applications to the membership club for the following men: Edward Rogal '18, John B. Tucker '31, G. Donald Freeman '32, Frederick J. Kolb, Jr., '38, Albert K. Ackoff '39, Collin H. Alexander '39, and Richard G. Talpey '41.

Announcement was made that at our next meeting Professor Samuel C. Prescott '94 of the Department of Biology and Public Health at the Institute would give a talk on the "Dehydration of Foods and Its Importance to the Army and Navy."

The following officers were elected for the new season: *President*, Hugh M. Shirey '22; *First Vice-president*, Ralph W. Peters '30; *Second Vice-president*, Richard M. Wilson '30; *Secretary*, James S. Bruce '39; *Treasurer*, John A. Rodgers '35; *Executive Committee*, Robert E. Smith '33, for the term expiring in 1945, and Harold H. Leary '23, for the term expiring in 1944 (to replace O. Glenn Goodhand '31). — JAMES S. BRUCE, *Secretary*, Building 57, Kodak Park, Rochester, N.Y.

*Technology Club of the Connecticut Valley*

The Club is now entering its winter season after a quiet summer disrupted only by the enthusiastically received steak roast of August 22. The fall meeting was held on October 20 at the Highland Hotel in Springfield in conjunction with the Engineering Society of Western Massachusetts. Charles M. Spofford '93, *Professor Emeritus of Civil Engineering at M.I.T.*, gave an interesting lecture on the forms of construction work that are playing an important part in this war and will continue to play an important part in our future peace-time activities.

Of the hundred-odd people present, approximately 46 were members of the Club, giving us a very good representation at this very interesting and worth-while meeting. — JOHN F. SEXTON '41, *Secretary*, 126 Maplewood Terrace, Springfield, Mass.

*Washington Society of the M.I.T.*

The first fall meeting, held on Friday, September 25, at 5:30 P.M., augurs well for the coming season. We had the unusually high opening attendance of 73. It has been decided that the Society will continue to hold its meetings on the fourth Friday of each month at the Y.W.C.A., 17th and K Streets, Northwest.

Mert Emerson '04 presided in his usual capable manner, welcoming the many newcomers particularly. Speaking on "Some M.I.T. Aids to Victory," Edward L. Moreland '07, *Dean of Engineering at the Institute*, presented many facts and statistics verifying the excellent work being done at the Institute in connection with the war effort, citing the many staff losses to the government and industry, and describing the very large research and development program carried on. His discussion of the new Course in Meteorology, the "outbreak of deans," the Grad-



uate House, and recent staff retirements was particularly interesting.

The Review Secretary is greatly indebted to our Treasurer, George D. Fife '24, for taking notes on the meeting in his unavoidable absence. The following M.I.T. men and guests enjoyed the talk and the ensuing dinner: John G. Crane '90, William B. Poland '90, James Swan '91, William E. Haseltine '96, Proctor L. Dougherty '97, Frederick A. Hunnewell '97, John P. Ilsley '97, Martin Boyle '98, W. Lorrain Cook '03, Hewitt Crosby '03, Merton L. Emerson '04, Amasa M. Holcombe '04, Henry L. Lyman '04, Stuart C. Godfrey '07, John H. Leavell '07, Edward L. Moreland '07, Charles P. Kerr '11, Carl G. Richmond '11, Alexander W. Yereance '11, Frank L. Ahern '14, Alfred E. Hanson '14, Aubrey D. Beidelman '15, John W. Conover '15, Wallace E. Wentworth '16, Sidney J. Judson '18, Albert F. Murray '18, Louis J. Grayson '19, Harry H. Fisk '22, Chester A. Moore '22, James R. Morton, Jr., '22, Paul R. Stewart '22, Robert K. Thulman '22, William V. Cash '24, George D. Fife '24, John D. Fitch '24, R. Paul Schreiber '24, Harry B. Swett '25, Avery H. Stanton '25, Kenneth S. Lord '26, Mary O. Soroka '26, Donald F. Horton '27, Gordon E. Thomas '27, Albert E. Beitzell '28, M. Waldo Keyes '28, Nicholas P. Stathis '29, Albert F. Bird '30, John A. Mathews '30, Robert M. Nelson '30, Morris N. Young '30, Frederick M. Moss '32, Robert W. West '32, C. Wallace Bohrer '33, M. Elsa Gardner '33, Milton B. Dobrin '36, Lawrence R. Steinhart '37, C. Ronald Smith '38, Joseph A. Neuendorffer '39, C. Cedric Ridgely-Nevitt '39, James A. Smith '39, Frederick S. Magnusson '40, Harold B. Palmer '40, Robert L. Kellner '41, Howard W. Wade '41, Douglas Watson '41, Monroe R. Brown '42, Morton E. Goulder '42, and guests, L. E. Seeley, Yale '21, and M. A. Powers, Wisconsin '21. — M. WALDO KEYES '28, *Executive Secretary*, 6514 Brennon Lane, Chevy Chase, Md. WILLIAM K. MACMAHON '22, *Review Secretary*, Rosslyn Gas Company, 3240 Wilson Boulevard, Arlington, Va.

## CLASS NOTES

### 1878

Mrs. Edith C. Baker, widow of Charles M. Baker who was our class president, died on Saturday, October 3. Mrs. Baker served on the school committee in Brookline, Mass., for 42 years. She was closely associated with the Class, having entertained us at dinner many times after the death of her husband. So close to us was she that at the time of our fiftieth anniversary we made her an honorary member of the Class, and she joined us at that anniversary luncheon tendered us by Samuel W. Stratton, President of the Institute at that time. — ALFRED S. HIGGINS, *Secretary*, 248 Northern Avenue, Boston, Mass.

### 1886

Since my last notes were sent to The Review, the Class has suffered the loss by

death of the following four members: David Van Alstyne on June 8, Dr. Alice G. Bryant on July 25, Charles F. Richardson on September 8, and Richard P. Borden on September 23.

Dr. Bryant, a graduate of Vassar College, came to the Institute for special work in our senior year. Four years later, she received an M.D. degree from the Woman's Medical College. A trained specialist in public health engineering and in diseases of the nose, throat, and ear, she was the inventor of several instruments used in her profession. Dr. Bryant was a prolific writer on medical subjects. She was actively connected with hospitals in Philadelphia, New York, and New England, and she was a member of many medical, scientific, and technical societies both in this country and abroad. She leaves a sister, Miss Grace Bryant, who lives in Woburn, Mass.

Van Alstyne began his professional career as a machinist apprentice in the shops of the Louisville and Nashville Railroad Company. In the eight years he spent there, he was promoted several times. Then for several years he ran a foundry business in Louisville, his native city. He then returned to railroad work, serving in the mechanical departments of the Northern Pacific and the Chicago Great Western railroads.

In 1907, Van Alstyne was made vice-president in charge of manufacturing of the American Locomotive Company. From 1910-1917 he was a consulting engineer for several railroads and engineering organizations. In 1917, he returned to the American Locomotive Company, where he served in various capacities until his retirement in 1930. In 1890, he married Ella Peay of Louisville, who survives him, as do two sons, David, Jr., and Ward Van Alstyne.

From his native city of Fitchburg, Richardson went for his technical training to the Brooklyn Polytechnic Institute and then to M.I.T., where he received an S.B. degree in Mechanical Engineering. In preparation for his life work as a patent lawyer, he studied at the Harvard University Law School. In 1901, Richardson opened an office in Boston, where he was actively engaged as a patent lawyer until shortly before his death. He is survived by his widow, who was Helen M. Bennett, sister of our former classmate, Stephen H. Bennett.

Like Richardson, Borden supplemented his training in Mechanical Engineering at M.I.T. with a course at the Harvard University Law School. From his graduation to the end of his life, he worked tirelessly and with distinguished success as a lawyer, manufacturer, banker, and civic benefactor, not only in his native city of Fall River but throughout the state and nation. Borden was a member of the law firm of Borden, Kenyon and Hawes; president and director of the Richard Borden Manufacturing Company; founder and director of the American Hospital Association; a director of the Union Hospital in Fall River; and a director of the Fall River National Bank. During the Spanish-American War he was

an ensign in the United States Navy. In the World War he served the War Department as a consultant on hospitals. A sister, Mrs. Clifford M. Gardner of Fall River, survives him. — ARTHUR G. ROBINS, *Secretary*, 12 Grove Street, Winchester, Mass.

### 1888

Benjamin G. Buttolph, formerly vice-president of the Manufacturers Mutual Fire Insurance Company, died on October 16. In the Providence, R.I., *Journal* of October 17 appeared the following obituary: "Benjamin G. Buttolph, 76, vice president emeritus of the Manufacturers' Mutual Fire Insurance Company, died suddenly of a heart attack . . . at his home, 123 Waterman street. . . . He became affiliated with the Manufacturers' Mutual in 1888 as a draftsman, and successively served as inspector and field engineer until his elevation to vice president in charge of sales in 1907. He continued as vice president until his retirement from active business in 1935. . . ."

Mr. Buttolph was born Aug. 3, 1866, in Essex, Vt., but early in life moved to Buffalo, N. Y. He received his early education in the schools of that city and was graduated from the Massachusetts Institute of Technology in the class of 1888. He was a member of the Providence Engineering Society, the American Society of Mechanical Engineers, the Providence Art Club, the Turks Head Club and was prominent in Masonic circles. He was associated with the late John R. Freeman ['76] in insurance and in engineering studies and experiments. Surviving him is his wife, Mrs. Oraetta (Hodgson) Buttolph. . . ."

Buttolph was an outstanding member of the Class, attending all class affairs, serving on committees, and doing everything in his power for the welfare of '88. He will be missed more than we can tell.

Mr. Hovey T. Freeman '16, President of the Manufacturers Mutual Fire Insurance Company, wrote to the Secretary as follows: "Buttolph was a fine character. He didn't have an enemy in the world. He was very gentle and had a host of friends. He retired from active business about six years ago, upon reaching his seventieth birthday. . . . He had a remarkable memory for dates, places, and people, and his passing is a real blow to all of us."

President Edwin S. Webster enjoyed the fine fall weather at his summer home in Holderness, N.H. Sanford Thompson, our Assistant Secretary, who has rendered expert assistance to the War Department in Washington for nearly two years, spent a short vacation in Boston.

Your Secretary has just returned from a ten-day visit to Annapolis and the United States Naval Academy, where he discovered in the "United States Naval Institute Proceedings," kept in the archives of the academy's museum, the following note about the engagement at Manzanillo, Cuba, on July 1, 1898: ". . . Then several gunboats previously obscured steamed out to meet us, landing one shell . . . on the forecabin where a reserve ensign . . . from Chicago nearly had his hand burned

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off grasping a hot fragment for a souvenir." That "reserve ensign from Chicago" was your Secretary. — BERTRAND R. T. COLLINS, *Secretary*, 39 Wiggins Street, Princeton, N.J. SANFORD E. THOMPSON, *Assistant Secretary*, The Thompson and Lichtner Company, Inc., 620 Newbury Street, Boston, Mass.

## 1890

It's a joy to find '90 still showing initiative in a good cause. Charlotte Bragg contributed to the scrap drive the iron fence which has surrounded her family cemetery lot for nearly a hundred years. With her contribution she gave an interview which doubtless brought in a lot more of the iron our country needs. Compliments from the War Production Board and her picture in numerous papers resulted. She writes that she is living at 186 Commonwealth Avenue, Boston, for the winter.

During the summer, Frank Greenlaw gave a course of lectures on "Fundamental Principles of Science" to a group of teachers who are to introduce the teaching of general science into seventh and eighth grades. This fall he became assistant professor at Brown University, teaching freshman physics. It is certainly a tribute to a man's past work to be appointed a professor in a leading university after he passes the age of 70. In announcing the appointment, the Newport, R.I., *News* commented on his efficient work as president of the board of health and as a member of the teachers' retirement fund. In this article we also got an up-to-date picture of Frank for the class files.

John H. Towne, who had a large part in directing the affairs of the Yale and Towne Manufacturing Company, died on September 29. The following is from the New York *Times* of that date: "Upon his graduation he began work in the Yale & Towne plant in Stamford, Conn., and in 1894 was transferred to the general offices of the sales department in New York. He was elected a director in 1898, secretary in 1904 and chairman of the board in 1938. From 1922 to 1925 he also served as treasurer. He was a director of the American Dredging Company. For many years he was chairman of the board of the Fifth Avenue Association. He was honorary vice president of the Community Service Society since its founding in 1939, having previously served as vice president of the Charity Organization Society. He had also been president of the Uptown Club, a vice president and director of the New York Eye and Ear Infirmary and a member of the Delta Psi Fraternity. His clubs were the University and St. Anthony."

Frederick W. Swanton, whose presence with his wife and daughter we have enjoyed at many class meetings, passed away on July 21. After graduation he was an instructor at M.I.T. He then became an electrical engineer at the Bath Iron Works, and from there went to the Eastern Steamship Lines. A practical genius with tools as a boy, from 1901 until he retired in 1940 he utilized his knowledge as an examiner in the United States

Patent Office. After retiring he continued to be an adviser on patent matters. Gifted in music, Fred played the piano, organ, and violin, and sang in the church choir.

William R. Peyton died in Duluth on May 28. He was formerly president of the Technology Club of Lake Superior and he was active in the Duluth Boat Club and in other civic and commercial organizations. He was one of the founders and treasurer of the former Gowan-Peyton Wholesale Grocery Company. On retiring from that company, he engaged in cattle raising in Montana, but he later returned to Duluth. — S. Rodman Snelling, who was with us during our freshman year, died in November, 1941. For a short time he was in the coal and ice business in Lincoln, Mass. He was the founder of the men's club of the Episcopal church in that city.

Mary Morse has changed her address to Poland, Ohio; John G. Crane has moved to 2717 Blaine Drive, Rock Creek Forest, Chevy Chase, Md.; William P. Flint can now be reached at Box 467, Coudersport, Pa.; and Adolph Hallenberg is at 1701 Bluegrass Avenue, Louisville, Ky.

In a recent issue of *Viewpoint*, a publication of Gustavus J. Esselen, Inc., our attention was caught by the headline "Dr. Whitney Philosophizes." No one is better qualified to discuss the attitude of a scientist toward research than our distinguished classmate, and the following quotation from the article will, we think, be of interest to other members of the Class. After asserting that "Scientists are the happiest of all people," Whitney goes on to state his credo: "He [the scientist] is a part of Nature and even his Nylon is as much natural to him as silk-worm extract. In fact he knows that he can get a more suitable product by being naturally inquisitive than any bug can incidentally provide as a by-product of his own affairs. The Scientist sees in Nature a strictly unlimited number of materials, laws, processes, etc., all always here, but only slightly appraised as yet. Instead of worrying about an anthropomorphic Creator, he tries to show a way of appreciating creation of Nature, by looking into it all as 'works' by which we measure quality. No scientist thinks of having 'his way' but all of them enjoy learning the right way." — GEORGE A. PACKARD, *Secretary*, 50 Congress Street, Boston, Mass. HARRY M. GOODWIN, *Assistant Secretary*, Room 2-236, M.I.T., Cambridge.

## 1892

Your Secretary has been gratified to receive many letters from our classmates. The portrait has been painted, and you will receive notification of a gathering of our membership at the time of the presentation and unveiling. This date has not yet been set. — During my vacation I met Channing M. Wells at Wianno on the Cape, where he has a summer residence. His home is at Fiske Hill, Sturbridge, Mass., where he is trustee of the American Optical Company, of which he was president from 1913-1936. Although his activities have been mostly with this company, he is also a director of several other

large concerns. He has five children and seven grandchildren.

Samuel W. Weis sends his questionnaire from his home in New Orleans. He is chairman of the board of the Ilg Electric Ventilating Company of Chicago, a company of which he was president for 20 years. He is also vice-president of the Brooklyn Land Company and vice-president of the Franklin Realty Company. Weis was treasurer of the New Orleans Cotton Exchange for nine years, and has been active in civic matters in New Orleans. — M. J. Look is now living in Provincetown, Mass. He has had a prominent part in the construction of various dams, highways, and railroads. He has been vice-president and manager of Winston and Company, Inc., and has held other important positions.

Bertha Millard Brown has been very active, mostly as a teacher. She was at the marine biological laboratory at Woods Hole, Mass., during the summers of '91, '93, and '94. She has been a teacher at the Scott Carbee School of Art, the Brookline High School, Vassar College, and Massachusetts State Teachers College at Hyannis. She is the author of several books on health, gardening, weaving, and other arts and crafts. She planned and built a home in Jamaica Plain, where she now resides. The reason that she has not attended any of our meetings is that she cannot stand tobacco smoke.

In September, our President, William R. Kales, underwent an operation on his left eye. He was in good condition when he went into the hospital and equally well when he came out. The operation was very successful, so he will now have the great comfort of having two eyes with which to see.

The remainder of the class news is sad, being a report on the death of several of our members. — George B. Blake of Lenox, Mass., died on June 3, 1928; Francis Alger of Eustis, Fla., died on February 18. — Daniel Frederick Potter died on March 6 in Buffalo, N.Y. He became ill on the way to his office. Potter was an electrical engineer in charge of apparatus for the General Electric Supply Corporation. He was born in South Braintree, Mass. He went to Buffalo in 1893 as an electrical engineer for the F. P. Little Electric Company and continued in this capacity with other General Electric distributors. Potter was a member of the Washington Lodge of Masons, the Buffalo Consistory, the Shrine, Founders and Patriots of America, the Sons of the American Revolution, and the Mayflower Society. He is survived by his wife, a son, two brothers, a sister, and two grandchildren.

James H. Slade died on April 29 at his home in Quincy, Mass. He attended Harvard and the Institute. For several years he was an accountant for the government, and for 31 years he was with the Index Bureau, Inc., of Boston in an executive capacity. He was city councilman in Quincy in 1915 and 1916 and from 1917-1924. He will be remembered as the athlete of the Class, and he was an athlete of considerable prominence in Quincy,



1892 Continued

playing on many baseball teams in that city, as well as engaging in a variety of other sports. Surviving him are his widow, two sisters, and a brother.

George S. Keyes died on May 5 from a heart attack at the Old Manse, Concord, Mass., where he was planning to pass the summer. He was a retired investment broker. For many years he was a member of the old Longwood Cricket Club in Brookline, where he was at one time one of the club's ranking tennis players. He was the tennis champion when he was at the Institute. He was also a recognized critic of paintings. Keyes leaves his widow, two sons, two daughters, two sisters, and eight grandchildren.

George E. Dadmun died on June 18, in Tuxedo Park, N.Y., after a brief illness. He was a retired banker and made his home at the Tuxedo Club. He was graduated from Harvard in 1890 and later became a member of our Class at Technology. At one time he was a trust officer of the Manhattan Trust Company and later was associated with Harris, Forbes and Company, retiring 15 years ago. He leaves a widow and a daughter.

William Braden of Los Angeles and New York died on July 18 of a heart ailment in Reno, Nev., where he had gone on business. He followed the mining industry throughout South America, Canada, the United States, and Mexico. Colonel Braden founded the Braden Copper Company in Chile, one of the world's great producers; the Andes Copper Company in Chile; and the Valardeña Mines in Mexico. He was also interested in copper properties in Nevada. He was a pioneer in the development of low-grade copper porphyry deposits, and an expert in the treatment of metals by oil flotation and in the mining of low-grade ores by the quarry method. In appreciation of his vast interests in developing the resources of Chile and because of his business integrity, the Order of Merit was conferred upon him by that country. In recent years he had been employed on special mining projects by the Anaconda Copper Company. Braden was one of the original group which built the Capitol Theatre in New York. He leaves a widow and a son, Spruille Braden, United States Ambassador to Cuba.

J. Scott Parrish has had the great misfortune of losing his wife. Mrs. Parrish died on July 27 as result of a heart attack at Roaring Gap, N.C., where she and Scott were spending the summer months. Mrs. Parrish had long been an outstanding figure in social, civic, and church interests in Richmond, Va. She had given generously of her time and means to the work of many philanthropic and cultural organizations. She was a native of Brookline, Mass., and was married to Parrish on December 6, 1893, in Brookline. Mr. and Mrs. Parrish had resided for many years at their Chesterfield County estate, famed for the beauty of its grounds and gardens and for the gracious hospitality of its owners.

Edmund Q. Sylvester died at his home in Hanover, Mass., on September 22. Sylvester specialized in ecclesiastical

architecture. He was the designer and treasurer of the John Curtis Public Library and the principal donor of the Edmund Q. Sylvester High School, a gift to the town. He was a prominent clubman, being a member of several Boston clubs, including the Union Club. Surviving him is a brother, Samuel S. Sylvester. — CHARLES F. PARK, *Secretary*, Room 5-111, M.I.T., Cambridge, Mass.

## 1895

We are sorry to record the death of Francis Edwin Faxon, II, on September 13 at his home at 117 West 58th Street, New York City. Faxon was a New Hampshire boy, born in Conway in 1873. He always loved the outdoors, and after graduation he started work with D. M. Osborne and Company, manufacturers of harvesting machinery in Auburn, N.Y. He worked for that company until 1902. From 1902-1914, he still followed the farm implement industry, working for Adriance Platt and Company of Poughkeepsie, N.Y. During World War I, he was superintendent of the shrapnel department of the Platt Iron Works at Dayton, Ohio. Later in 1916, he superintended the machining and loading of three-inch Russian shrapnel cases for the American Can Company of New York. During 1918 and 1919, he was supervising inspector of ordnance material for the War Department in Washington, D.C. He then returned to business and became secretary-treasurer of the Trussell Manufacturing Company in Poughkeepsie.

Faxon never gave up the thought of owning a small farm, and he finally moved to Wappingers Falls, N.Y., where he lived for a number of years. About five years ago, he retired because of a heart ailment and moved to New York City, where he passed away. His buoyant disposition and his ever-present smile will be remembered by all the Technology boys who frequented Columbus Avenue eating establishments.

Frederick W. Harris has moved from Sea Cliff, Long Island, to 63 Westfield Avenue, Roselle Park, N.J. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

## 1896

A clipping sent by O. B. Denison '11 is of particular interest. It tells of the announcement by Mr. and Mrs. Harlow L. Rockwell of Watertown, N.Y., of the engagement of their daughter Mary Lee to James Hugh Fuller, an aviation cadet in the Naval Reserve. The latter is the son of our classmate Bob Fuller of Worcester. Last June, Miss Rockwell graduated from the College of Fine Arts, Illustration, Syracuse University, and Cadet Fuller graduated from the same department at the same time. The conclusion is that there was a natural propinquity that resulted in the engagement. Cadet Fuller is now at the United States Naval Air Station, Jacksonville, Fla.

Various notes have come in from classmates acknowledging receipt of the class book. All the comments are rather pleasing. Arthur Baldwin had a slight criticism

of the use of some French terms in the menu of our class dinner in 1893. LeBaron Russell reports that he is no longer with the Rheinwein Imports, Inc., at 817 Boylston Street, Boston. He is now with S. Hooper Hooper, Inc., at the same address. John A. McIlvaine in his retirement is located at 855 Lakeshore Drive, Asheville, N.C. Victor Shaw's address in California is 11628 1/4 Mayfield Avenue, Los Angeles.

A card from Myron Fuller, which arrived the last of September, says that he and Mrs. Fuller spent last winter driving in Texas and Florida, and then, because of the gas situation in New England, thought they would spend the summer in the South instead of returning home to Brockton. They found a cottage near the Gulf of Mexico at Long Beach, Miss., 60 miles east of New Orleans, a very pretty spot on a live-oak boulevard running 25 miles along the shore through Gulfport and Biloxi, Miss. At the time the card was written they were planning to leave for the coast of Texas on October 1, because Florida had become included in the territory under gas rationing. Since that time gas rationing has been ordered for the entire country, but no further word has been received from the Fullers on how this matter affected their plans.

Admiral Bakenhus has yet to make that trip to Boston which was mentioned in the November Review. He also takes issue with the statement in the class book that one of his recreations is golf. He says the statement should be that one of his recreations *was* golf, as he gave up the game some years ago, with a resulting great increase in peace of mind. He was in Mexico through the early part of October, going by train as far as Laredo and flying the rest of the way. He returned all the way by air. He found this most enjoyable and more conducive to sleep than traveling in a Pullman. His flight from Mexico City to Ixtapac was glorious, with a view of Ixtacihuatl, Popocatepetl, and Pico de Orizaba, all snowcapped.

Having picked their apples, Charlie and Bertha Tucker started out on their customary fall vacation trip, which has generally been an ocean voyage along the coast to the southern shores. Details are not yet reported, but will be given in the next issue. — Con Young has oiled up his typewriter and sent in two letters, neither of which was very long. He and Abby had a very nice summer on Cape Cod. They were planning a little trip to Connecticut, but a winter in Florida this year is definitely out for them because of restrictions on automobile travel. Fort Myers cannot possibly be the same this winter without the presence of Con Young, but Fort Myers' loss will be Cape Cod's gain, and Con will have an opportunity to stoke the furnace, take out ashes, and shovel snow, instead of basking in the sunlight of sunny Florida. He promises more news anon.

Classmates may have noticed in the November Review that in the list of Technology men in the armed services we have two men, Billy Clifford and Harry Hamlet. If any classmate has knowledge

1896 Continued

of any other of our fellows who are now serving Uncle Sam in any capacity in the Army, Navy, Coast Guard, or Marines, the Secretary will welcome word of it. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

## 1897

John Hastings Howland, I, died on October 11 in New London, Conn. Following graduation, Major Howland worked for five years as superintendent of public works in Honolulu. Returning to Boston, he specialized as a fire protection engineer and became known as one of the foremost authorities in the country on the installation of public water systems. For thirty years he was a member of the national board of fire-apparatus engineers. For nearly twenty years he resided in Montclair, N.J., making his headquarters in New York City. In 1939, he went to New London, where he became active in civic affairs. He was a 32d degree Mason. During the World War he served as a major in the Quartermaster Corps in Washington. He leaves his widow, a sister, and a brother.

John was a member of the famous '97 quarter which entertained at all the class dinners during our undergraduate years. We can see him now as, standing in all the majesty of his tallness, he sang with the other members: "We meet again tonight boys with mirth and song." He will be lovingly remembered by those of the Class who still continue to stand by.

Herbert Lyman, VII, assistant editor of the *Monthly Weather Review*, Washington, D.C., assists in the preparation of statistical matter covering the meteorological conditions all over the country for the current month. Lyman has been with the Weather Bureau for 36 years, beginning as assistant observer at Portland, Ore., then at Seattle, Spokane, and Walla Walla. He served as editorial clerk under Cleveland Abbe, former director of the Weather Bureau. Lyman will be glad to welcome any of his classmates visiting Washington, particularly if they have any new ideas regarding the weather.

Bernard Barrows, X, who is assistant examiner of the United States Patent Office, Division 23, has moved with that office to Richmond, Va. He is connected with that division that passes upon applications for calculating machines, cash registers, counters, and so on. — George Wadleigh writes that he and his wife recently spent a very enjoyable two hours in Rochester, N.Y., with Edgar Hawkins and his wife. Hawkins is with the Eastman Kodak Company and is no doubt tied in with war work in some way, as are most of us.

Proctor L. Dougherty is very active in hunting up news of '97 men and several items in this issue come from him. If other classmates in the various sections of the country would but do the same thing, this column would be much more interesting and up to date. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

## 1898

Of the four '98 men on the M.I.T. Faculty, three are now in the ranks of the professors emeriti. Arthur A. Blanchard, Professor of Inorganic Chemistry, retired in July, 1941; Joseph C. Riley, Professor of Heat Engineering, retired in February, 1942; and Maurice deK. Thompson, Professor of Electrochemistry, retired in July, 1942. Arthur L. Goodrich, Associate Professor of Drawing and Descriptive Geometry, will still carry on as an active member of the Faculty.

We note in the Boston *Herald* of June 12 that the Babson Institute is contributing to the war effort as follows: "Tuition for qualified men and women, wishing to take a number of courses sponsored by the United States Office of Education at the Babson Institute of Business Administration, Wellesley Hills, as part of a national project for specialized training in fields essential to national defense and war production, will be paid for by the federal government, it was announced yesterday. The courses will deal with the following fields: industrial management, industrial statistics, map drafting and interpretation, office management for women, and production engineering and supervision. Admission to the courses will be based, in a large measure, upon the applicant's general fitness for work and probable success."

We note also that Babson arrived on June 21 at the biennial convention of the General Council of the Congregational and Christian Churches of the United States prepared to fight for a revision of the council's constitution. He has for some time been advocating reforms in the organization of the Congregational churches.

Paul F. Johnson reports that he delivered his yacht to the United States Navy at San Pedro, Calif., on January 26. Since he received in payment but a small fraction of its value, he can be considered as having contributed his part toward the defense of the Pacific Coast. He had shortly before taken a last cruise. In April, he took a trip to Milwaukee by train to attend the annual meeting of the Johnson Service Company. His son, Seymour Johnson, who had been a radio engineer on the Pacific Coast, has since July been in the Radiation Laboratory at M.I.T.

Martin Boyle dropped in to see the Secretary recently. He was especially anxious to find out if we are going to observe our forty-fifth reunion in 1943. He was told that we are going to do something about it, and that Ernest Russ is chairman of the committee. Since that time, Charlie Locke '96, Alumni Secretary, asked about our plans, and Ernest invited Ed Chapin, Elliott Barker, and Arthur Blanchard to lunch. They decided that if the present war conditions still hold, we would not want to have the usual three-day outing next June. This year's senior class graduates on February 1. On Alumni Day, which will come on Saturday, January 30, our Class will meet at 1:00 P.M. in Room 403 of the Univer-

sity Club, 40 Trinity Place, Boston. Lunch will be served at 1:30 P.M., and we shall remain throughout the afternoon for a social get-together and for special '98 features. In the evening we shall go to the Hotel Statler to join in the general Alumni Banquet. It is possible that the war outlook may change before January 30, and that we can then consider the advisability of having an outing in June.

Martin Boyle, who started this reunion discussion, was first associated with the Department of Agriculture in Washington as a chemist. In 1913 he received the degree of LL.B. from the Georgetown University of Law, and he has since gone more and more into the legal end of the administration of the food, drug and insecticide branches of the Department and the public welfare administration, and has gone more and more away from chemistry. Nevertheless, he asked questions about recent developments in chemistry and showed an intelligent appreciation of them. He retired from active work last July 1, and on this trip he had been visiting his old home town of Newburyport. He is trying to decide where to settle down permanently.

We have just received a report from Henry B. Kane '24, Director of the M.I.T. Alumni Fund. As of September 15, our contributions were only \$961, or 46 per cent of our quota of \$2,070. We regret to say this is the lowest percentage of any of the classes from 1887 through 1905. Your Secretary has always abhorred high pressure solicitors who are ruthless in their demands. He thinks that the education of our children (grandchildren to us) and the proper feeding and clothing of our families take precedence over even the demands of our alma mater. Nevertheless, he does feel that our prosperous Class could contribute at least the quota of \$2,070 without cramping its members.

We have received the following new addresses: William R. Bonnycastle, 1950 Robson Street, Vancouver, B.C.; Clarence Goldsmith, Hotel Raleigh, Washington, D.C.; Frederick H. Jones, 62 Brighton Street, Rochester, N.Y.; Charles W. Pendell, 331 Keystone Avenue, River Forest, Ill.; and Benjamin F. W. Russell, 20 Newbury Street, Boston.

Winthrop L. Fay died in 1939. His last address was Fay and Scott, Dexter, Maine. — Raymond H. Danforth died on August 30. He was born in Salem, Mass., on November 8, 1877. He went through the four years at Technology with us and was graduated in Mechanical Engineering. From 1908-1911 he was on the staff of the naval engineering experiment station at Annapolis, and from 1911-1914 he was assistant to the head of the postgraduate department of the United States Naval Academy. From 1914 to his death he was professor of mechanics and hydraulics and head of the department at the Case School of Applied Science in Cleveland. Danforth was engaged in many engineering and civic activities in Cleveland. His fields of scientific research are listed in "American Men of Science" as follows: "... Flow of fluids; impact

**Come back to Tech — Saturday, January 30 — Annual Alumni Banquet and Class Day Exercises**



1898 Continued

and abrasion; resistance of metals; properties of twisted fibers." — ARTHUR A. BLANCHARD, *Secretary*, Room 6-421, M.I.T., Cambridge, Mass.

## 1901

We have received the following communication from the editors of *The Review*: "In order to be sure that the *Review* will properly parallel the Institute itself in the most thoroughgoing following of government wartime restrictions, we have checked with the public relations bureaus of both the War Department and the Navy Department on the question of identifying men in the uniformed services. There is no objection to publishing a man's name and rank, but there is serious objection to listing the unit with which he is serving. The Departments are anxious that the name of a navy man's ship or an army man's regiment or company should not get into print, where it might help to disclose the station of the vessel or location of the regiment."

"Class notes, of course, provide the ideal means for classmates to start correspondence with each other, and Class Secretaries have done well in giving mailing addresses where possible. Because these government regulations prevent the inclusion of many military and naval mail addresses, *The Review* will be glad to help keep classmates in touch by forwarding letters to men in the service. If you would like to make mention of this arrangement in your next set of notes, the staff here is ready to go to work as a central forwarding station."

There is no class news on hand at this time, and as it seems probable that this unfortunate situation will often occur again, we think it advisable to do as many classes do, to publish class notes every other month, instead of every month as was our practice last year. Our next class notes will therefore appear with the odd-numbered classes in the January issue of *The Review*. — GUY C. PETERSON, *Secretary*, 788 Riverside Drive, New York, N.Y. THEODORE H. TAFT, *Assistant Secretary*, Room 3-266, M.I.T., Cambridge, Mass.

## 1902

Your secretary has to report the death of his brother Joseph on October 18 at his home in Arlington, N.J., after a brief illness. The funeral was held at his boyhood home in Newburyport, Mass., and he rests in the family lot in Seabrook, N.H., where he still owned the old family homestead. At the time of his death, he was plant superintendent at the Parsons Ammonia Company in Passaic, N.J., where he had been for many years. Shortly after his graduation in 1903, Joe went to New York and served the Consolidated Gas Company for two years as assistant superintendent at its West 44th and West 42nd Street stations. From 1905-1910, he was in Brooklyn as superintendent at the Columbia Chemical Works, which later became the Parsons Ammonia Company. In 1910, Joe returned to Newburyport and for five years

served as mechanical engineer for the Towle Manufacturing Company, silversmiths. He returned in 1915 to the Columbia Chemical Company and remained with them and its successor until the time of his death.

Joe was married in 1909 to Clara B. Smith of Wheaton, Ill., who survives him. He also leaves two sons, J. Edward '32, now at Hingham, Mass., and George Allen, who resides in North Arlington, N.J.; and a grandson, son of Edward. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston, Mass.

## 1904

After an absence since the March Review, notes from '04 reappear. Because of the shortening of the Institute year in 1942, Alumni Day activities were held on April 25, and on that day there was a small '04 gathering at the University Club prior to the Alumni Banquet at the Hotel Statler. Those present at both functions were Munster, Ferris, Fellows, Parker, Moore, and Stevens. At this gathering, the subject of the annual reunion in June was discussed, and it was the consensus of those present that the reunion should not be held because of the shortage of rubber, gasoline, and the consequent impediment to transportation. Our reunions had been held each year, commencing in 1919, and it was with much regret that the decision was made. We hope that when peace reigns once more, we shall be able to take up again the reunions which have meant so much in the past.

With two exceptions, I have no knowledge of the participation in governmental activities, Army, Navy, or otherwise, of any of our classmates. I received from the provost marshal of the Third Corps Area an inquiry regarding Reggie Wentworth. If my answer was of any influence, Reg must have got the job for which he was applying.

Under date of September 5, I received an announcement of the dissolution of the patent law firm of Emery, Holcombe and Blair. The announcement contained the statement that Amasa M. Holcombe had withdrawn to join the staff of the Alien Property Custodian. — If any of my readers know of any classmates who are in the government service in any capacity, I would appreciate very much being so advised, in order that I may incorporate the information in future notes.

I might say that our reunion was not entirely abandoned, as on the usual June reunion week end Mr. and Mrs. Ed Parker spent the time with Mr. and Mrs. Harry Kendall at their home in the peaceful little village of Westminster, Mass. The Kendalls have recently taken up residence there to escape the roar and turmoil of the city of Gardner, where Harry had resided since his birth, save for that memorable four years spent at "Tech on Boylston Street."

Gene Russell, our Class Agent for the Alumni Fund, reports that the returns from the Class are nothing of which to be overproud, so if any readers have not done their duty in the matter, this may

remind them to take action. If such there are, and they have lost their pledge cards, a check, payable to the M.I.T., sent to me will reach the proper destination promptly. — These notes are not burdensome in length, and I hope some readers will feel moved to help increase the next lot by sending me some news.

Walter T. Keen, Rochester, N.Y., died October 18, 1941. Llewellyn Bixby, Long Beach, Calif., died January 26. — Freeman Nelson Bull, widely known mining engineer and a resident of Joplin, Mo., for many years, died on May 12 at Owenton, Ky., where he had made his home during the past year, and where he was manager of the Kentucky mining interests of A. E. Bendelari of Lexington, Ky., formerly of Joplin. He was stricken with a heart attack last November, but was believed to have regained his health and had resumed his duties.

Following his graduation in 1904, Bull went to Joplin, where he was employed by some of the larger mining companies operating in this district, including the Eagle-Picher Mining and Smelting Company. He spent several years on mining projects in Bolivia, Panama, and the Malay States. Bull was born in Springfield, Mass., and was a member of a prominent New England family. He was married to Imogene Burns of Joplin, who was with him at the time of his death. Surviving also are two sons, Freeman N. Bull, Jr., of Joplin and March Bull, a sergeant stationed at Fort Sill, Okla.; and a daughter Margaret Bull, a junior at Georgetown College, Georgetown, Ky.

William Newman Todd, Portland, Maine, died on July 18 on his 61st birthday, following a long illness. Born in Newburyport, Mass., on July 18, 1881, the son of William and Phebe (Plumer) Todd, he attended the schools of that city, graduated from Newburyport High School, and from M.I.T. He went to Portland, Maine, in October, 1904, and began work with the Portland Company, where he continued until 1938, when illness forced his retirement. During his period of service with the company he served as an electrical and elevator engineer.

Todd was a member of the Woodfords Club, a member of various Masonic bodies, was a past president of the Maine Association of Engineers and the M.I.T. Club of Western Maine, and for several years served as an Honorary Secretary for the Institute. In 1910 he married Mary Helen Bird of Belfast, who with one daughter, Mrs. Robert Sprenkle of Rochester, N.Y., survives him. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, Apartment 202, 3024 Tilden Street, Northwest, Washington, D.C.

## 1906

The Class has been honored by having two of its members elected to head prominent national societies. These elections took place several months ago, but this is the first opportunity to record them in these notes.

1906 Continued

Harold Coes is president of the American Society of Mechanical Engineers. The following quotation is from the A.S.M.E. News of August: "Mr. Coes has been an active member of the Society since 1907, serving as Manager, 1929-1932, and as Vice-President, 1927 and 1932-1934. His committee work includes service on the Professional Divisions Committee, the Materials Handling Division as chairman, the Finance Committee as chairman, Budgeting Policy Committee, and, at present, the Special Committee on Depreciation and the Special Committee on War Production. In 1927-1928 he served as vice-chairman of the Chicago Local Section. He represented the A.S.M.E. on the board of United Engineering Trustees, Inc., serving as president and as chairman of the organization's finance committee, and is now the Society's representative on the Engineers' Defense Board.

Other national and local professional affiliations include the American Management Association of which he is chairman of the Finance Committee, Engineering Index, Inc. Director, Association Consulting Management Engineers of which he is a past-president, Society for Advancement of Management, National Manufacturers Association, Army Ordnance Association, Montclair Society of Engineers, and American Arbitration Association. For the Seventh International Management Congress, he was vice-chairman of the finance committee. He was one of three Americans selected to attend the International Budgetary Conference on budgetary procedure and control, held at Geneva, Switzerland, July, 1930. Mr. Coes is the author of many papers on economics, management, and industrial and marketing subjects, such as 'Production Control,' the section on 'Materials Handling' in the 'Cost and Production Handbook,' 'Depreciation and Obsolescence,' and sections in the A.M.A. 'Handbook of Business Administration.'

The second member of the Class to be honored, and incidentally another Course II man, is Herbert J. Ball, who is now president of the American Society for Testing Materials. Ball was elected at the forty-fifth annual meeting held at Atlantic City in June. The following is an excerpt from the *Rayon Textile Monthly* on the subject: "Professor Ball is also chairman of Committee D-13 of the A.S.T.M., which comprises more than 243 members, all well-known and important men from all branches of the textile industry. Under his tutelage the D-13 Committee has progressed and grown rapidly, demonstrating the importance and value of standardization in testing of textiles. We extend heartiest congratulations to Professor Ball and hope that his efforts in behalf of the textile industry will continue to bear fruit in his added responsibilities as president of the entire society comprising of more than 4600 industry and student members. It is indeed the first time that a textile man, educator and engineer has received such an honor. Committee D-13 has been in

existence since 1914 and is devoted exclusively to textiles. It is one of the largest units of the American Society for Testing Materials, of which W. H. Whitcomb '03] has been secretary for many years."

Thanks to Charles E Locke '96, Alumni Secretary, we present the following item about C. F. Willis, III: "Charles F. Willis, publisher of the *Mining Journal*, Phoenix, Ariz., and chairman of the board of governors, Arizona Department of Mineral Resources, has been appointed as a consultant to the Metals Reserve Company. He will act in two capacities for the company; one, as an observer to receive criticism, complaints, and suggestions regarding the present policies of Metals Reserve Company and regarding further assistance which the company may render to the mining industry in encouraging the production of strategic minerals and metals; and two, as a liaison representative, to advise the producers of the facilities available through Metals Reserve and of its limitations in assisting mining throughout the Western States." Incidentally, Willis has been named secretary of a committee to direct an intensive state-wide salvage drive to collect broken-down machinery, obsolete equipment, and discarded materials of all kinds.

We are indebted to C. R. Wilfley for the following, dated Denver, Colo., August 22: "There may be a few of the fellows who will be interested in my doings. I have joined the United States Bureau of Mines to help in the new drive to get out more metals. I am now mining engineer with the bureau and am taking charge of a project." — Congratulations to Assistant Secretary Ned Rowe. Edward Bennett Rowe, Jr., '36 and Mrs. Rowe of Armstrong Point, Hampton, Va., announced the birth of a daughter, Nancy Munce, on June 11. Sharing grandparent honors with Ned and Mrs. Rowe are Mr. and Mrs. John Munce, Jr., of Richmond, Va.

Below is a letter received from R. E. Cushman, Portland, Ore., dated July 28: "Class news is always foremost in my mind as I open each issue of *The Review*. The July issue occasioned a feeling of considerable regret that I did not make a last-minute attempt to secure a reservation for the Alumni Banquet. My plans usually call for a trip to the Atlantic Coast every two or three years, with Boston one of the stopping places. When I was sitting at my office desk on April 13, matters were called to my attention which resulted in an immediate decision to leave that evening for Boston and my old home town, Kingston, for a vacation trip. Most of my leisure time was spent in the country, and when I thought of the banquet it was too late to act; in fact, when I was on the train I assumed that reservations were all taken. You listed several of my old pals as among those present, and I am sure sorry that I did not try to crash the gates.

"On the evening of April 27, when I left Boston, I was very happy to have dinner with C. R. Burleigh at the South Station. That social hour was a very

pleasant one indeed. Now do not condemn me for my lack of initiative, as I hope to do better next time. Give my regards to former classmates. I extend a cordial invitation to my old friends to look me up if they should pass through Portland. Mrs. Cushman and I hope to be back for a vacation in another year or two. I took last spring's outing by myself, as local obligations kept my wife busy at home."

The July issue of the *Telephone Review*, which is the magazine of the New York Telephone Company, announces that J. M. Buchanan has been engineer of equipment in the Manhattan-Bronx-Westchester division. He has now taken on the added responsibility of building engineer for the same division. — Charles Kasson has been living at his country place in Plaistow, N.H. He announces that he has now moved to Academy Road, Pembroke, N.H. William J. Deavitt, III, who has been living in Los Angeles, is now at Sonora, Mexico.

H. P. Carruth, who has been with the Brown Company in Portland, Maine, is now with the same organization in Berlin, N.H. — Word has just been received that Ralph Patch has been called into the service. Ralph has been active in committee work relative to the procurement of drugs for the armed services. Further details about his latest assignment will be given when they are available. — JAMES W. KIDDER, Secretary, Room 802, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills, Mass.

## 1907

*Mining and Metallurgy* for September states that John G. Barry now heads a permanent field staff for the metals and minerals division, Board of Economic Warfare, with offices at Edificio Guardiola 506, Mexico, D.F. The field staff will examine new properties brought to its attention and make recommendations for worth-while operations in this vicinity. This item comes through the courtesy of Charles E Locke '96. — Carl Brewer, II, who was with our Class for only a part of our undergraduate years, inasmuch as he attended Yale University from 1901 to 1905, securing his A.B. there, and then in 1907 received his Ph.D. from the same college, has been connected with the Cleveland-Cliffs Iron Company continuously since 1907, as mining engineer, superintendent, and chief mining engineer since 1930. His home is at 708 Cleveland Avenue, Ishpeming, Mich. He is married, and has one son 28 years old who attended Michigan College of Mines, and is now a mining engineer.

In the fall of 1941, Lester Brock left the employ of C. P. Hall Company, organic chemicals for rubber compounding, for whom he had been a salesman for ten years, to become a salesman for Continental Carbon Company, with office at 311 Peoples Bank Building, Akron, Ohio. His home address is 75 Casterton Avenue, Akron. — Arthur O. Christensen, III, is affiliated with our Class, although he received his degree in 1908. He

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1907 Continued

was connected with mining work in Canada, South Dakota, New Jersey, and other places for a few years, but most of his life has been spent in Beaufort, S.C., as a land surveyor and realtor. He has a daughter, 20; and a son, 19. He writes: "I feel fortunate in having the best things life can give, namely, a desirable home with admirable wife and children and ability to live comfortably with a margin to spare. Still continue to appear much younger than my age." — Harry Crohurst has been engaged in public health service ever since 1907, having been a sanitary engineer in the Massachusetts State Department of Health until 1914, and since that time with the United States Health Service located at Cincinnati, Ohio, where he is now senior sanitary engineer. During recent years, he has been making co-operative pollution surveys on the Ohio River watershed with the United States Army Corps of Engineers. He has a daughter, Cornell '42, and a son, Cornell '44. His family home is at 6504 Park Lane, Mariemont (Cincinnati), Ohio.

Laurence R. Davis, III, became a member of our Class in 1905, after having received his B.S. degree at Ohio Wesleyan University. He has always followed mining, having many different jobs with many different companies in several different states, and all the way from Alaska to Mexico, until 1923, when he became quarry superintendent with the Santa Cruz Portland Cement Company at Davenport, Calif., where he has been up to the present time. He has a daughter, 20 years old, University of California '44; a daughter, 18; and a son, 8. — James M. Gaylord, VI, has had three jobs since 1907. He was with the United States Reclamation Service until 1923, superintendent of hydrogeneration for Southern California Edison Company until 1931, and since then has been chief electrical engineer of the Metropolitan Water District of Southern California, with office at 306 West 3d Street, Los Angeles, and home at 2330 Ridgeway Road, San Marino, Calif. Jim has a son 33 years old, who has attended Occidental College at Los Angeles and the University of California at Berkeley, and is now an electrical engineer in Los Angeles; and a daughter 28 who attended the University of Arizona. Both children are married. Jim wrote last June: "Have just completed and am now operating the power and pumping system of the Colorado River aqueduct. The present capacity is 100,000 kilowatts; ultimate capacity, 300,000 kilowatts. Cost of project is \$200,000,000. It is about the largest thing of its kind ever undertaken. Also contains some of the best and cheapest construction. There have been no politics, no graft, and no scandal. My favorite amusement is remodeling old places for pleasure and for profit. Didn't realize I was getting so old till I picked up a soldier the other day and he called me 'Pop.'"

Albert E. Greene, who took the Course in Electrochemistry, has been manager of the Greene Electric Furnace Company, 2702 6th Street, Seattle, Wash., ever

since 1907. The record with reference to his children is quite unique in '07 annals, as two of his four children are twins, and two of his sons are clergymen. His oldest son, 30, attended Northern Baptist Theological Seminary in Chicago, and Loyola University (Jesuit), Chicago, receiving degrees from both. He has a church in Ellensburg, Wash. He and his wife have given Albert four grandchildren. The second son, 26, attended Dallas Theological Seminary and the University of Washington, and is now a minister located with his wife and one son at a station in Free China. Of the twins, 22, the daughter has a Washington private pilot's license, and the son is a lieutenant in the Coast Artillery. Albert's home address is Box 71, Medina, Wash. — We have in our Class, in the person of Edwin W. James, one of the leading authorities of the world in roads and road building. Since 1910 he has been with the Bureau of Public Roads of the United States Department of Agriculture in various positions of ever-increasing responsibility and is now chief of the inter-American regional office at 1523 L Street, Northwest, Washington, D.C. Technical adviser at the International Diplomatic Conference on Automobile Circulation at Paris, France, in 1926; a member of Consejo de Vías de Comunicación, Colombia, S.A., in 1929; he has been in charge of surveys and construction of Inter-American Highway since 1930. He was the recipient of the Belgian Foundation award for technical publications at the Sixth International Road Congress in 1930; was the United States delegate to the Pan-American Highway Congress in Chile in 1939 and in Mexico in 1941; is chairman of the committee on standards of the American Association of State Highway Officials. He is married, has one daughter 35 years old, and lives at 6412 Beechwood Drive, Chevy Chase, Md.

Tom Keeling wrote his regrets last June at his inability to attend our reunion and extended his earnest invitation to all '07 men to look him up if they are ever in Nashville, Tenn., where Tom for twenty-five years has been president of the Nashville Machine and Supply Company, 123 Third Avenue, North. His older son was graduated from M.I.T. in '35, is married, and is now a major in the Coast Artillery, attached to the Army and Navy Munitions Board. His younger son is in the class of 1944 at Vanderbilt University, where Tom himself attended from 1903 to 1905. — John McMillin was one of those whom we particularly missed at last June's reunion, because he usually is with us. At the last minute he was prevented from coming by war activities of the Cities Service Company, of which he is a director and vice-president, and the various petroleum and electric power operating and holding company subsidiaries, in which he is an officer or director. John's older son, 26, was graduated from Dartmouth College in 1939 with A.B. degree, is married, has one child, lives in Tulsa, Okla., and is a flying instructor at the Spartan Air School there. The younger son, 22, was

graduated from Dartmouth in '41 and is now at M.I.T., summer and winter, taking Business and Engineering Administration, striving to get his degree in September, 1943.

From Alexander Macomber, our Class President, came a note from Washington, D.C., dated October 20: "I have just come here — another dollar-a-year man, as chief of the manufactured gas section in the power branch of the War Production Board. Our job primarily is to handle the problems of the industry resulting from war conditions, and to supervise the curtailment problems which will arise this winter in many areas, which may be unable to supply swollen demands, all complicated by reduced fuel supply and inability to increase plants on account of lack of material. I expect to be here for the winter and help organize our program. My address will be care of Manufactured Gas, Power Branch, War Production Board, now located in Temporary Building R at 4th Street. My Boston office at 110 State Street will still function, and you can always reach me there." — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. HAROLD S. WILSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

## 1909

Paul Wiswall wrote: "Last month's class notes were written just as I had returned from a stay of several weeks on the coast of Maine. This is being written from Detroit, where I am spending a few days with my sister. On the coast of Maine you are impressed by the evidences of shipbuilding everywhere — at Portland, at Bath, and even at small ports like Wiscasset, Waldoboro, and Stonington, where in recent years, in these days of steam rather than sail, almost no ships have been built. Here in this center of automobile building, the accent is on tanks, trucks, and airplanes. My sister says that Detroit is the 'workingest' place ever. Perhaps the housewives of many other cities feel that their towns are the busiest. Certainly here in Detroit as you drive about, no matter at what time of night, you see plants blazing with light, and every machine in sight is busy. I like to think of my younger nephew. He is a lean, lank string bean who works on a lathe in a shop where precision gauges are made. He works 12 hours a day, and as soon as his shift is over, someone else takes his machine for another 12 hours. I was interested to find, incidentally, that my nephew earns more in a week, some 50 per cent more, than I earned per month on my first job after graduation. Maybe times do change. Who knows?"

"The family took me out to see the bomber plant of the Ford Motor Company at Willow Run, west of Detroit. Of course I knew that the buildings must be designed on an enormous scale to house such huge operations. But how can anyone be prepared for the vastness of the buildings or even for the network of roads by which access to the plant is

1909 Continued

gained? If Detroit has always seemed to me the most motor-minded city I have ever visited, where the distances are designed for the use of motorcars and not for ordinary streetcar transportation, my impression of Willow Run is that only high-speed transportation can possibly get those employed there back and forth. Willow Run is a very heartening sight."

You have no doubt read that Brad Dewey has been appointed right-hand man to William M. Jeffers, rubber director. Brad will be deputy rubber director. The following editorial from the Boston *Herald* of October 1 hits the nail on the head: "Dewey should make a perfect supplement to Jeffers in the rubber administration. The Cambridge researchist is a competent industrialist, deeply imbued with the spirit of technical investigation and application. His qualities were especially well known to President Conant of Harvard and President Compton of Tech, who served on the committee."

"A graduate of both Harvard and Tech, Mr. Dewey came up the hard way. He began his career in mining, worked as a laborer in every department until he knew them well, and then went into his life work, research. Yet despite his test-tubes and theories, he has never lost touch with the practical aspects on which any productive research must be based. During the last war he was chief of gas defense for Chemical Warfare Service and earned the Distinguished Service Medal. Since then, he has concentrated his efforts on rubber and with his partner, Charles Almy [10], has brought his chemical company to a position of pre-eminence in its field. Recently he has been rubber consultant to the Army Quartermaster Corps. His new job, as key technical man in the nation's critical rubber problem, will probably be the toughest he has ever tackled. But if any man can solve it, he can. He has the ability, the experience, the vision, and the will." — Not only do we wish Brad well, but all of us who served under him in 1917-1918 have a pretty clear idea of the job he will do. More power to him!

Word has been received that Tom Desmond, state senator in New York, has been elected chairman of the New York Joint Legislative Committee on Nutrition. This committee has been established to study problems of war workers and causes of possible nutritional deficiencies in men rejected for selective service. The contributions to the welfare of the state of New York which have been made by Tom during the past few years would make a long list. — Edward L. Ryerson, I, chairman of the Inland Steel Company, was recently elected a director of the Atchison, Topeka and Santa Fe Railway at the annual meeting of the latter company in Topeka, Kansas. Associated with Joseph T. Ryerson and Son, Inc., since 1909, he has been chairman of the company since 1937. Ed is a graduate of Yale University as well as of the Institute. He succeeds Joseph E. Otis of Chicago, a banker, on the Santa Fe board. Congratulations, Ed.

Charles Camsell, XII, Minister of Mines and Resources and commissioner of the Northwest Territories, Canada, recently made an inspection tour of projects being undertaken in northern British Columbia and the Yukon territory. — In September, Robert A. Masjoan, 28 years old, flew 6,000 miles from Buenos Aires to join the Marine Corps. Born in Quincy, Mass., Masjoan is the son of Valerio Masjoan, XIII, of our Class, a former lieutenant commander in the Argentine Navy and the first Argentinian to graduate from M.I.T. The Class is as proud of Robert as Valerio must be.

Arthur Knipp is back again from the Orient, having returned recently on the famed *Gripsholm*. He is now at Harvard teaching electronics to officers of the Signal Corps and the Navy as part of the same general course in which your Assistant Secretary is also active. As many of us may know, Arthur has spent most of his time since graduation teaching in China, and was at the Lingnan University at Canton until driven out by the Japs. He describes his experiences as follows: "Through our connection with Lingnan University, then in Hong Kong and now carrying on in Free China, my wife, young daughter, and I were caught in Hong Kong during the war of December 8 to 25, and later on we were confined in the Stanley Internment Camp for five months. The Japs started their attack in the Far East on the morning of Monday, December 8. At 7:45 A.M. we were startled to hear planes overhead and the sound of heavy antiaircraft firing from a battery of guns just below our apartment. Tuning in at once to Shanghai and to station KGEI, San Francisco, we learned of the attack on Pearl Harbor. Driving downtown, we found the food shops crowded with buyers, with a strict limit placed on what one could purchase. There were continual air raid alarms, and people were crowding inside for the possible protection of concrete stairways."

"Returning to our apartment on the mid-Peak level, we were informed by an official caller that the government was taking the apartment over. The billeting office assigned us to a private residence, Number 191, on the top of the Peak, on Mount Kellett, 1,500 feet above sea level."

Just adjacent are the Matilda Hospital and the War Memorial Hospital, and unfortunately for them and for our own comfort and security, the British military had placed several batteries of field guns on the hillside in the immediate vicinity. At once these became targets for Jap bombers and for Jap artillery on the mainland. Shell hits made No. 191 uninhabitable. One shell struck and banged in the dining room wall where Peggy had been standing at the window just a minute before, and we were ordered to go to another house which boasted an air raid shelter. After the surrender, on the walls and roof of the Matilda Hospital could be counted the marks of 90 shell hits, and the War Memorial Hospital suffered equally.

"For a few days after the war started, we continued to have light and water. But

soon the Japs captured the main power station, and from then on we depended for light on candles and small Chinese kerosene lamps, and for water on the little which trickled down the hillside and upon a surface well which too many people were trying to use. Sanitation and personal hygiene were a trying problem. Our car was requisitioned by the government of Hong Kong and turned over to Marsmans Hong Kong, Ltd., which was building air raid shelters for the government. I continued to drive it for Marsmans. This required going through Magazine Gap, a special target for Jap artillery. There were any number of shell holes along that road. Luckily we picked out times to drive through when there was a lull in the firing. During those war days, my family and I were living by the hour, for, both downtown and on the Peak, constant shelling and frequent air raids made us feel that life was not any too secure. Luckily we escaped injury."

"With the armistice came a feeling of being at the mercy of the Japs. Two days after the surrender, 12 fully armed Jap soldiers came to our house, placed their machine gun at the entrance with an armed guard, and proceeded to search the house for blankets. They took all of our eight blankets, leaving us only an eider down each, and this was on the coldest day of the year. One young Jap slapped me on the face when I could not produce the key to a locked room. Fortunately the houseboy appeared just then with the key to that door. It was a relief after a few days to be admitted to the Matilda Hospital as volunteer workers, but even there we did not feel any too safe because Jap officers and men came in and prowled around whenever they felt like it. On that account, we were inclined to welcome being transferred to the internment camp at Stanley, where the presence of many fellow Americans would relieve us of that feeling of helplessness and insecurity."

"But little did we know beforehand of what awaited us in that internment camp. We Americans were in hygienic quarters; most of the Britishers were not. But with us also there was bad overcrowding. Technically we were internees; actually we were prisoners of the Japs, for we could not leave the camp or be visited by our Chinese friends, nor could letters be sent in or out. The food which the Japs supplied was despicable. During those five months of internment, we were given no fresh fruit, no bread or flour during most of the time, and no fats and no milk except a meager milk ration to children during the first few weeks. Everyone lost weight. My wife lost 40 pounds. Luckily we escaped getting either dysentery or beriberi, both of which were very common."

"How very grateful we felt to our State Department for getting us away from Stanley in the repatriation program. Then followed the eight weeks' ocean trip to New York around the Cape of Good Hope, in the middle of which we disembarked from the *Asama Maru* at Lourenço Marques and boarded the good



1909 Continued

ship *Gripsholm*. How marvelous it felt then to be without injury and in good health after those months of war and imprisonment, and how overwhelming was our new feeling of freedom as we journeyed back to our beloved United States."

When taking over these class duties, the Secretary and Assistant Secretary found all the records, which have recently been removed from Charlie's office, right up to date in every respect, even though Charlie had been inactive for several months. We learned that not only recently but from way back, Charlie's secretary, Mrs. Mildred T. Lawton, had been active in assisting Charlie with class affairs. Accordingly we extend to Mrs. Lawton the gratitude and appreciation of the Class for all that she has done.

The following is part of a letter sent by The Review editors to class secretaries: "There is no objection to publishing a man's name and rank, but there is serious objection to listing the unit [or the ship] with which he is serving . . . where it might help to disclose the station of the vessel or location of the regiment. Class notes, of course, provide the ideal means for classmates to start correspondence with each other, and Class Secretaries have done well in giving mailing addresses where possible. Because these government regulations prevent the inclusion of many military and naval mail addresses, The Review will be glad to help keep classmates in touch by forwarding letters to men in the service. . . ."

Charles L. Fellows '79, whose death on October 3 is listed elsewhere in this issue, was the father of our classmate Raymond H. Fellows, who was killed in action at Château-Thierry on July 17, 1918. — PAUL M. WISWALL, *Secretary*, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge, Mass. *Assistant Secretaries*: MAURICE R. SCHARFF, 235 Second Street, Southeast, Washington, D. C.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

## 1911

Still rolling along, '11 was not content with having reached its quota of 128 subscribers to the Alumni Fund, and on October 26 we had 140 subscribers, or 36 per cent of the Class on the list. Geographically there is a close race between the Middle West and Metropolitan New York, with 23 men out of the 52 living in the former area contributing, and 22 out of 51 in the latter. Here are the figures 'round the globe: Metropolitan Boston, 34 out of 94, 36 per cent; balance of Massachusetts, 3 of 30, 10 per cent; New England outside of Massachusetts, 12 of 33, 37 per cent; Metropolitan New York, 22 of 51, 43 per cent; balance of New York State, 4 of 23, 17 per cent; balance of Atlantic States, 18 of 47, 38 per cent; Midwest, 23 of 52, 44 per cent; Southwest and West, 10 of 37, 27 per cent; territories, 2 of 6, 33 per cent; and foreign, 5 of 17, 29 per cent.

Freshman Camp this year was held right at the Institute because of transportation and housing difficulties at Camp Massapoag in Dunstable. Again I was a guest. There were nearly 600 freshmen present this year—a record attendance. I enjoyed teaching the freshmen songs and cheers and entertaining them from time to time. It was my good fortune to meet three junior Eleveners: Dave Gaillard, son of Pete Gaillard, VI; Bob Hildebrand, son of Walter Hildebrand, I; and William Reynolds, nephew of Joe Harrington, VI. I had nice chats with all of them.

My joy was complete when I found that the principal speaker at the Freshman Smoker, climax of the week end, was Luis deFlorez, a commander in the Navy. Now with the Bureau of Aeronautics in Washington, Monk flew from Kansas City to Boston to keep his appointment. He gave the boys splendid advice concerning the importance of fitting themselves for the needs of the nation.

Early in October, the Boston Sunday *Post* printed an interview with Gordon Wilkes, II: "We were all in the same boat this past week," the interview opened, "when the first frost of the season descended upon us. The question was, should we start the furnace or not? Well, a lot of folks did and no doubt the warm air was very comfortable. But those who didn't turn on their heaters got a pretty good idea of what their homes are going to be like this winter when fuel conservation really gets into full swing, with 65 degrees the temperature government officials suggest for all New England homes this winter. Gordon B. Wilkes, professor of heat engineering at M.I.T. and one of the foremost authorities in the country, has given his views on the subject. For years he has been a devotee of 65-degree temperature through his own choice and the choice of his family.

"In the first place," said Professor Wilkes, "we Americans are too extravagant in heat as we are in almost everything else that concerns our mode of living. We can be just as comfortable in a house heated to 65 degrees as we can in one heated up to 70. I know it to be true from personal experience and from what I learned from people in other parts of the world. Lowering your thermostat only five degrees means a saving of 15 per cent in the amount of fuel consumed. Additional heat from a fireplace and from the kitchen range will make up the difference in the rooms utilized most."

Here is a summary of Gordon's suggestions on how best to cut down on fuel: "Fill cracks with papier mache. . . . Let the mail man keep ringing. . . . Do more baking. . . . Black out more rooms with cardboard—it makes excellent insulation. . . . Pull down window shades when you retire because the air space between window and shade acts as insulator. . . . Get out grandma's old feather beds. . . . Don't worry about the baby—healthy babies can take it. . . . If the fuel situation gets too bad you can even burn old corn stalks."

In the first fall issue of *Mass Transportation* is an article by Ban Hill, I, President of the Baltimore Transit Company, titled "How Wartime Transit Problems Are Met In Baltimore." "Our policy in Baltimore for meeting the wartime transit emergency," he begins, "has been constantly to be expecting the worst and then trying to be ready for it. Hand in hand with this went a public relations policy, namely, letting the public know that we expected the worst so that they, too, would know what to expect and that we were doing our best to prepare."

Ban then speaks of the patient and understanding public in that Maryland city and continues: "In the past seven years we have added 472 vehicles of the most modern type to our fleet of cars, buses and trackless trolleys. We were actually in the midst of a seven or eight million dollar modernization program when the war broke out in Europe. It was in the early summer of 1940, not in 1941 but in 1940, that it first became clear to us in Baltimore that we might be in for a transit emergency. Just exactly how difficult the job was going to be I don't believe any of us fully realized. Not many of us foresaw the rubber and gasoline crisis as it shapes up today, nor the serious shortages in so many materials needed for the new transit equipment. But we did do one thing here—when the new cars and buses were coming in we stopped junking the old stuff in the summer of 1940. Instead we let it accumulate in shops and storage yards. . . . The despised old-time street car, symbol of decadence and obsolescence, has become, through the fortunes of war, one of the most important things in the picture.

"Again we were fortunate in foreseeing that if we had to operate a great many more cars on our rail lines we might have to augment our power supply and we were equally fortunate in being able to get hold of considerable second-hand power equipment, which has increased our power capacity throughout the system in time to meet the emergency. By this method of general cooperation many problems are being worked out, including the problem of staggering working and school hours; the furnishing of service to war plants which have been built in peacetime remote from public transit lines; the servicing of great shipyards whose complements of workers grow daily by leaps and bounds, requiring the most careful attention to fresh scheduling of cars and shifting of the hours of shipbuilding crews; the salvaging of old rails in the street from abandoned rail lines; the elimination of downtown curb parking to promote speed and regularity of transit service, and many others."

"American production for war," Ban concludes, "actually begins at the car stops and bus stops on all the transit lines all over the land. This is a frightening thought to us at times, but whatever we have to do, that we will do, for we know that this is a war which we must win, not lose. We shall do to the best of our ability and to the limit of our endurance whatever we have to do to win it."

## 1911 Continued

Last month we told about the efforts of leaders in the mining industry to get Jim Greenan, III, to run for governor of Nevada. Charlie Locke '96, Alumni Secretary, wrote in early October: "James O. Greenan, III, formerly directing engineer for the principal Marsman enterprises in the Philippines and now a leading producer of quicksilver in Nevada, finally rejected appeals that he enter the Republican primaries as candidate for governor of that state."

It was nice to learn in late September that army engineers had awarded Fred Daniels' Riley Stoker Corporation a contract of between \$50,000 and \$100,000 for furnishing and installing a report and fire-alarm system in Franklin County, Ohio. Also, it was nice to see and chat with Leroy Fitzherbert, I, at the October convention of the Massachusetts Association of Insurance Agents here in Worcester at the Hotel Bancroft. Fitz, you know, is state agent for the Home Insurance Company, with offices at 40 Broad Street, Boston.

With a renewal of his subscription to the Alumni Fund, Alanson Palmer, V, wrote the following from New Port Richey, Fla.: "Took over the Hacienda Hotel, a winter resort. There'll be no business this year, unless the Government takes over the hotel for service men's training quarters, but living is pleasant. War work and war effort have us busy, even if we don't make much money. Come down when you retire or any time you get to Florida. The Technology suite is ready." The enclosed folder showed that the place is most attractive, and that the rates are reasonable.

Aleck Yereance, I, a captain in the Corps of Engineers, writes: "Once more we're settled in the Washington area. Our new address is Apartment 21, 1214 South Thomas Street, Barcroft, Arlington, Va. I am administrative assistant, plans division, headquarters, Services of Supply, with offices now in Room 3007, Munitions Building, but due to move soon to the new Pentagon Building in Arlington, which will be quite handy to the new quarters. So far I've attended one meeting of the Washington Society of the M.I.T. I saw some old friends, but none from '11. Better luck soon, I hope."

One other address, also in the capital area, is at hand: Conor W. B. Coppinger, 215 North Washington Street, Alexandria, Va. — And speaking of address changes, The Review editors have checked with both the War Department and the Navy Department on the question of identifying men in the uniformed services. There is no objection to publishing a man's name and rank, but there is serious objection to listing the unit with which he is serving. Class notes, of course, provide the ideal means for classmates to renew correspondence with each other. Because of these government regulations, The Review will be glad to help keep classmates in touch by forwarding letters to men in the service. — To all of you, best wishes of the holiday season wherever you are, and don't forget to make a New Year's resolution to

"Write to Dennie." — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

## 1914

According to the latest information, which is probably far from complete, the following classmates who are regular army and navy men now hold these ranks: Tom Richey, rear admiral; Bob MacCart, commander; Joe Carrier, lieutenant commander; Lucian Burnham, colonel (Marines); Alden Waitt, brigadier general; Tom Green and Joe Wood, colonels; and Bill Lucas, lieutenant colonel. They are joined by reserve officers now on active duty, as follows: Pete Storke, colonel; E. L. Osborne, lieutenant colonel; Herbert Hall, Ralph Salisbury, and Welton Snow, majors. Your Secretary would greatly appreciate hearing of any others who have joined the services.

Many more classmates are serving in various civilian capacities, and it would also be a real help to your Secretary to hear of these. Ray Dinsmore has one of these assignments. First he served on Edward R. Weidlein's synthetic rubber program committee, and now he is serving on the administrative committee for the Office of Technical Development. Your Secretary is heading a group in the National Defense Research Committee and has taken to commuting between Washington and Cambridge.

Dunc Shaw, who not so long ago became president of a large hardware manufacturing company, is now busily engaged in the manufacture of armor and bullets under a new and greatly improved process developed by his company. — Bert Hadley was in Cambridge recently to attend a meeting of the M.I.T. Corporation. As one of the principal executives of the Remington Arms Company in Bridgeport, he too, needless to say, is extremely busy. — Roy Parsell of the Winchester Repeating Arms Company in New Haven is also reported to have little idle time on his hands.

Dean Fales has thrown out a challenge against removing automobile bumpers to provide scrap. Dean claims that they are an essential part of the structure of the chassis on many cars and are necessary protective and safety elements in car operation. His statement was agreed to and given considerable publicity by the Registry of Motor Vehicles of Massachusetts.

Malc Mackenzie has been re-elected treasurer of the New Hampshire Manufacturers Association. — While in New York recently, your Secretary called on Ross Dickson and found him buried under an analysis of thousands of oil patents and licenses he was preparing for the government in connection with his patent activities for the Standard Oil Development Corporation. Ross said that this job, which has taken nearly a year, would be completed by about Thanksgiving, and then he would have time to get back to writing you a letter regarding the

Alumni Fund. Our Class has a good showing in numbers, but a poor showing in amount of contributions. Can it be that '14 men do not earn as much as men in '13 or '15 and other classes of our period? Certainly not. Then the answer must be that our classmates do not understand what the Alumni Fund is all about. Ross will soon take care of that.

It was a great shock to your Secretary, as it will be to many other classmates, to learn of the death on October 25 of James A. Judge. Jimmy has always been a loyal '14 man, both in his attendance at class reunions and in his generosity when funds were being collected. Now it can be told that he was one of the largest 1914 contributors to the Endowment Fund. In recent years his strength had been greatly taxed in trying to rehabilitate the Highland Manufacturing Company of Holyoke, Mass., which company he had served for many years as treasurer and general manager. Death came after a short illness following an acute heart attack. He leaves a wife, but no children. Jimmy will be greatly missed by his many friends, particularly those in Course VI.

Russell Trufant, who had been working on a temporary project at the Hingham, Mass., naval ammunition depot, reports that he has moved back to his cranberry bogs and has harvested a bumper crop to keep up the food supply. If the supply of orange juice continues to dwindle, we may find ourselves thinking of Trufant at breakfast time every morning. Cranberry juice and substitute coffee for breakfast!

Your Secretary recently had the pleasure of being the guest of Alden H. Waitt in Washington. Alden, a brigadier general, is in charge of field operations for the Chemical Warfare Service. That should give some idea as to how busy he is. To those classmates who remember the submarine incident at our tenth reunion, it would be quite a contrast to see Alden being driven around in state and getting the attention that goes with an army generalship. To his friends, however, he is just the same genial, cordial Alden. — H. B. RICHMOND, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

## 1916

Phil Baker, who almost came to our last reunion, has the following to say about the real estate business in Detroit: "They say Foch gathered his generals together, former students of war under him, and said, 'Forget all you ever learned; this is a new war.' So, too, it is with real estate in Detroit. All logic, calculation, reason, and experience fail to explain Detroit real estate today. The greatest industrial city, growing very fast, is crazy with loose money, and yet prices are less than we paid the farmers 20 years ago. And this is despite the fact that the lots are all built up with new homes. Rent control, no new building allowed, no disposing of war works, no alterations, and higher taxes all

*Come back to Tech — Saturday, January 30 — Annual Alumni Banquet and Class Day Exercises*



## 1916 Continued

introduce new variables in our new economic life. But many war workers' homes were built while construction was allowed here, as in so many other places. The new government housing projects introduce a whole new theory. Having assembled a large tract for a big one, I am not so adverse to it all as many in the business are. I can only sing the familiar tune: 'Take me back to the dear old Twenties, to the days of high prices and plenties. . . .'

Dina Coleman writes from Lexington, Ky., that he expects to go back in the Army soon. Judging by the shortage of coal for heating purposes in New England, perhaps Dina better keep his coal mines operating and forget the Army for a few months. — Frank Ross, the famous '16 golfer of Connecticut, has just been promoted to the position of manager of the Factory Insurance Association in Hartford, Conn.

Joe Meigs broke into print in the New York Times of September 26 because his wife, a resident of Scarsdale, joined a movement known as the auto strip campaign. Classmates can be glad their wives are not on this committee, as it involves giving automobile bumpers, spare tires, spare wheels, and so on, to the scrap campaign. Maybe Joe will drive to our next reunion in his strip-teased chassis. — Steve Whitney passed through town a few days ago and told your Secretary that his beautiful summer home in Meredith, N.H., on an island in Lake Winnepesaukee, is for sale. It seems to me Steve tried to sell Assistant Secretary Steve Berke some of his camp when Coleman Brothers Corporation was doing some construction work up that way at the time of our twenty-fifth reunion.

Alex Brest, who has been building air bases for the last two and a half years, has just joined the Army as a major in the Corps of Engineers, and at present is on duty at Camp Claiborne, La. — Charles J. McCarthy, general manager of Vought-Sikorsky Aircraft in Stratford, breaks into print quite regularly. In September, however, he made an extra splurge with a picture showing him on the platform with Admiral Towers when the employees of his plant presented the Navy with a completely paid for fighter plane. — Isidor Richmond, architect and engineer, advises that he has joined the Navy as a lieutenant commander and has closed his office for the duration. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

## 1917

Dix Proctor contributed last month's notes, and by the time these appear he will undoubtedly still be amazed at his facility with the English language, as have other more frequent contributors to this column. The secret lies in the practice of sending these notes through the Dean's Office, where the editorial urge automatically deletes split infinitives, various barbarisms, and occasional unin-

tentional lack of tact. Dix was fortunate, however, in not experiencing one consequence of this procedure in that there were inserted no wise cracks, deeply subtle or frankly blunt, based on the Dean's uncanny memory for past incidents and detail — a memory at times embarrassing. To Dix both the Secretaries and the occasional writers owe thanks for refreshing their material, and the Secretaries, at least, hope that he will follow up another year.

It has been a long time since we heard from or about Ed Rounds. It is good when word does arrive to find that his abilities have been given ample scope in the war effort. He has been establishing, and presumably will initially operate, a proving ground for aeronautical work. Details, of course, we are not free to supply, but the impression is that he has been doing exceptionally well an unusually difficult organizational and administrative task.

Don Friend commutes regularly to Washington and is heading up or expediting activities for the Signal Corps in the New England area, serving as a civilian in the employ of the Corps. — We hear indirectly that Judge James Doon is active on the Public Service Commission in Concord, N.H.

Early one evening in Washington the unmistakable stride of Claudius Henry Mastin Roberts caught the corner of your Secretary's eye. In the course of the evening, Lieutenant Colonel Roberts described his interesting attempts to get into uniform right after Pearl Harbor. His efforts terminated in the choice of two distinct travel orders which arrived on the same day and called for reports at two different places and times. Fortunately, the colonel is now happy in work of a type related in principle, at least, to his civilian activity. Although the prospects of front-line service are not too good, he is at least contributing amply.

John DeBell landed in the office simultaneously with a reminder from The Review that class notes were due. John, having traveled widely, extensively, and wordily, immediately made the following contribution to the current column: "From secondhand sources I learn that Kingsley Gillespie, the genial editor of the Stamford *Daily Bugle*, is now a commodore in charge of the sound patrol. So far, they have effected a rescue of a sailor and two lady friends who got a flat tire [*sic*] when sailing in those waters. The authorities furnish the sound and Kingsley furnishes the fury.

"The only word from Walt Whitman, now buried under his duties at the War Production Board, is that he is harassed as usual. — John Lunn has established semipermanent quarters in Washington, where he bedevils government agencies for raw materials. These are usually furnished in self-defense. Don Kendall, president of the Mack Molding Company, Boonton, N.J., is busy adding new molding plants to his present chain. So far, the prices of his molded pieces have not assumed 5 and 10 proportions." — That

is the balance of John's comments after an equivalent quantity of puns, persiflage, and personalities was deleted by the Secretary.

As for John himself, he continues to solicit consulting business in the plastics industry. He is commuting between Washington, Cambridge, Hartford, and New York. His home and office are in Longmeadow near Springfield, Mass., where Mrs. DeBell does all his work and sends him out peddling it. He is a consultant to the War Production Board on plastics and related materials, and he makes it his business to keep in close touch with new developments in plastics and molded products. His verbosity has not diminished with the years.

Your Secretary must admit that he has no hope of keeping adequately in touch with the additions to the armed services from the Class and with the many promotions of those already in service. From time to time, presumably Lobby will attempt at least a partial directory, but it is probable that all the information in it cannot be published. An occasional high light appears, however, that must not be neglected.

Recently, New York, Boston, and other papers carried almost full-page spreads with illustrated descriptions of the progress in salvaging the ex-*Normandie*. The stories yielded the first announcement of Bill Sullivan's promotion to a captaincy in the Navy. His confidence in the recovery of the *Normandie* impressed the reporters, as obviously did the organization and engineering skill being displayed on the job. It may properly be noted here that the *Normandie* is only one of the many difficult assignments that come in Bill's way in his capacity as supervisor of salvage.

Of less dramatic interest to the public, but nevertheless of considerable significance to his friends, was an earlier newspaper article saying that the directors of du Pont had elected Walter J. Beadle assistant treasurer. It will be recalled that Walt was for some years traffic manager of the Philadelphia Rapid Transit Company, joining du Pont in 1928. Previous to his newest assignment, he had been serving as assistant director of the development department.

A. C. Carlton, curator of fuels and metals at the Museum of Science and Industry, Jackson Park, Chicago, has been granted temporary leave of absence to assist the War Department in the production of ammunition. His assignment with the Federal Government, under civil service, is in the small fuse and primer section, ammunition division, of the Chicago Ordnance District. He is a member of the American Institute of Mining and Metallurgical Engineers, and served as chairman of the Chicago section of the institute in 1939-1940.

Citizen H. B. Kane '24, Director of the Alumni Fund, wrote congratulations to Al Lunn for his work in obtaining funds for the 110-class sailboat dedicated at the reunion and christened the *Ford*. These notes now record the official appreciation of the Class. — At this writing, Win

1917 Continued

McNeill is trying to transfer his assignment as Class Agent, maintaining that his new duties at Squibb's take all the energy and most of the time he has available, and that his work as President of the Class absorbs any excess. We are trying to convince him that more effort will be involved in his resignation than in continuing as agent. However, more of this later.

If it has not previously been announced, we note that Hamilton L. Wood has merged his business with Kinkade and Company, Inc., and has become vice-president and treasurer in their conduct of general insurance business. If previous mention has been made — the files are not immediately available — then we expect to charge Ham for advertising space. — Similarly, we note that John H. Holton has been made vice-president of the Carrier Corporation, where his responsibilities include full charge of their plant operations.

Announcements of honors to various sons and daughters of classmates have recently appeared in the press. Howard Stewart's daughter, Betty, was graduated from the Amy M. Sacker School of Design and Interior Decoration; and Henry Strout's daughter, Helene, received the highest college emblem at Sargent School of Physical Education, Boston University. As secretary-treasurer of the college judicial board, she is following in the footsteps of her father as an organizer. — No attempt can be made for complete citation of society notes of this type, which is perhaps just as well, for soon some of the Class will be boasting about grandchildren graduating, and the effect may not be pleasant on others who still think they are young and handsome.

Your Secretary again has the sad duty of recording the death of a classmate. Mrs. Carl N. Hand writes from Charleston, W.Va., that Carl passed away on September 18. He was a member of Course X.

At press time comes the belated announcement by the Navy Department of the tragic sinking of the U.S.S. *Wasp* near the Solomons on September 15. All of us will take comfort from the fact that her captain, F. P. Sherman '17, was not himself a casualty, and we can be proud that under Forrest's able direction about 90 per cent of the ship's company, according to the Navy Department's announcement, were rescued. — **RAYMOND STEVENS**, Secretary, 30 Charles River Road, Cambridge, Mass. **PHILIP E. HULBURD**, Assistant Secretary, Phillips Exeter Academy, Exeter, N.H.

## 1918

Most of the notes this month will be comprised of answers that Jack Hanley received from his cards. The response has been so good that I wish members of other courses would do what Jack did, then perhaps we could really have notes in *The Review* every month. When we were first graduated I remember that some of us took over our own courses and sent the notes to the Secretary. That meant something. Who'll volunteer?

Don't forget to make your plans to be in Boston on Saturday, January 30. In the afternoon will be the festivities of Class Day, at which we will have a member of the Class as a speaker, and in the evening will be the dinner in the Hotel Statler. You will receive full particulars about this event from other sources. We shall have a room in the Statler for '18 headquarters on that day. — Also remember this will not be the only time that we shall get together. In June, we shall have a week end at Weekapaug in the new inn.

Now for news from Jack Hanley: Jack was heading west for Chicago, Rock Island, and way stations when he wrote. Perhaps in his wanderings he will see some of the fellows and have more direct news. Let's hope so. — Harold E. Collins sends greetings from the Philadelphia Signal Depot, where he is a captain. (J. H. note: I recalled that Harold was interested in the Student Cadet Corps while at M.I.T., so I got out an old copy of "Technique" and found he was a colonel in his senior year. Doubtless he couldn't resist getting into the present Army. — Gee, didn't we wear funny-looking collars in 1918?)

Johnny Clarkson wrote: I am still at the Hood Rubber Company, Watertown, Mass. I've been here 20 years. I have two boys and one wife. My older boy is in Middlebury College, and the younger one is only 10. Am spending most of my time on war work, and do airplane spotting in Concord, Mass. What are our plans for the twenty-fifth reunion? (J. H. note: It was good to hear from John and especially to be reassured that he has not gone to Hollywood and is apparently content with one wife. John's card made me wonder about George Washington Thomas. Shorty was in the mill room at Hood's the last time I was there about 1924. He was milling rubber of a beautiful pink shade the day I saw him, and he whispered, or rather yelled in my ear above the noise of the mills, that he strongly suspected the stock was for rubber corsets which were then just becoming fashionable for reducing purposes.)

Ray Miller came across with: "I guess you know where I am — Summers Agency, Boston and Salem. My 20-year-old son, Jack, is within five months of being an aviation master mechanic at New England Aircraft School, and then he will go into the Army or Navy. Have many of our classmates returned to the service? The Miller family headquarters are at 73 Fuller Avenue, Swampscott, and any '18 folks who are ever in this vicinity are invited to phone and come up — Lynn 2-3419. We might even show them their pictures taken at Weekapaug." (J. H. note: You'll all recall Ray's arrival and stay in his trailer at the twentieth reunion at Weekapaug. He was accompanied by that raucous, carefree, learning-to-be-a-boy-again Don Goss. I suppose, Gretchen, you won't forget him soon either, as he conferred upon you your first honorary degree.) That is where you are mistaken, Jack. Charlie Dow gave

me my first honorary degree at the beginning of our sophomore year in college. Jack suggests that Don give us a bit of verse for the notes.

It seems fitting that our pleasant and learned President should follow reference to Don Goss, for it was Don who coined the jingle ending "You're just plain Maggie to me." Maggie said: "You shall have a letter, not a post card, from me in good time. I'm snowed under with college opening, but I have a lot of news and expect even more after a trip to New York and Philadelphia this week. Your letter was a 'lulu.'" As Secretary, I can tell you that Maggie is now in Washington and will be doing all his work with us by long distance and remote control. (J. H. note: Am still waiting for Maggie's letter. If I don't get it in what I consider "in good time," I'll start writing him and annoy him to death till he produces.)

And, by golly, good ole Bob Grohe postcarded the following: "Enjoyed hearing from you. Think you know what I am doing or should be doing. Plants here in the West are really turning out war materials, and you should see the ships being constructed in every 'back yard' in Duluth. Just got back from 12 days' fishing in northern Minnesota. I figure that it will be the last trip for the duration. It hurts a little to write, as my fingers are still sore from the cuts I got handling many and large fish. Regards to all." (J. H. note: Bob is now vice-president of the Protection Mutual Fire Insurance Company. I saw him last fall at a luncheon in Chicago. About that time, he and some of his neighbors in Deerfield, Ill., got themselves elected to the school board and were having great fun taking the politics out of it. I wonder if Bob still plays the cornet?)

A grand letter from Bill Turner sheds some light on the mystery of whom his sister-in-law married. "Although writing letters is a job I usually manage to talk myself out of, I am prompted to answer yours of September 15. I read the class notes each month in *The Review*, lament the usual lack of '18 notes, and go right on contributing nothing myself. So, to ease my own conscience and get you out of a jam that evidently slipped up on you via the pinch bottle route, I am sending on a few notes.

"Chink Watt and George Halfacre might happen to read this, so for their information I'll say that I've been railroading ever since the last war. I've been with this company for 22 years, variously located in Pittsburgh, Dallas, New Orleans, Denver, and for the last 15 years in Akron. We have one son, Bill, Jr., who gets along pretty well on his own. Last year he was heavyweight champ at the Great Lakes Naval Training Station — at 6 feet, 3 inches tall and weighing 190 pounds. Now he is at Admiral Farragut Academy, Pine Beach, N.J., preparing for an appointment to Annapolis next spring.

"The reference in your letter to a trip you made to Akron in 1928 was most interesting to Mildred and myself. No, my sister-in-law didn't marry the West Point

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1918 Continued

cadet. She married a railroad man in Pittsburgh, and is now busy raising a family of railroaders. I was in New York last week and called at Pete Sanger's office. He was out of town, and I was indeed sorry to miss him. We see a lot of Technology men here, as there are a large number working for the rubber companies, and the M.I.T. Club of Akron is quite active. We have two other '18 men, George Sackett and Conny Knox. George is a chemist with Goodyear, and Conny, or more formally Commander C.V.S. Knox, United States Navy, is in charge of all naval aircraft work in the district. He has been in the Navy ever since the last war. He and I were in the same outfit of the Naval Air Force at that time.

"As this is a vital defense plant area, work in civilian defense units is very active. After completing the training course for police officers, I was given a job much more to my liking, as my hobby has always been guns. We are organizing a company of armed civilian riflemen, and it's my job to train them as guerrilla fighters, and this is not monkey business! My other avocation is photography. I went off the deep end on that several years ago, and I stuck at it until the war cut off the supply of chemicals, paper, and so on. Also, anyone now seen at large with a camera is apt to get turned in to the Federal Bureau of Investigation, so I have put mine away for the duration.

"Railroading is a pretty serious matter these days, and even though we may not be getting as much gasoline over to you Yanks as you would like to have, the roads are still doing a powerful job in the war effort. At any rate, it keeps those of us engaged in that industry plenty busy, and we are glad to contribute all the time we can. Hope there may be something in this letter of interest to you, and I'd be glad to hear from you personally whenever you get the time."

Bill's letter is exactly the type I had in mind when I made my appeal for class notes. Incidentally, Bill is general agent of the freight department of the Nickel Plate Railroad. Contrary to Bill's thought that the railroads are not shipping enough gasoline to "us Yanks," the impression in Rhode Island seems to be that the railroads are doing such a good job that they are the outstanding maintainer of morale among us ordinary folks. They are in a class by themselves when compared to other unorganized muddlers. For the benefit of Chink Watt and George Half-acre, especially, here is Bill Turner's address: 706 Peoples Savings Trust Building, Akron, Ohio.

My idea is that each one of our Class should write an annual letter for the class notes. We should hear from a dozen or so on my list each month, and I'll try to keep that many coming along. — Bill Wills acknowledged my letter from 3 Joy Street, Boston: "Thank you for your letter. Last year and the early part of this were extremely busy for me, although the only really outstanding work I did was a government defense housing project in Springfield. This is now nearing completion. It consists of 300 dwelling units.

Everybody seems to like the project. It is apparently more attractive than most of the housing jobs previously done, even if it was held down to prescribed limits both as to cost and appearance. Since getting that out, I have been doing a little private housing myself, and probably shall continue in this as long as I can get materials. This work has consisted mainly of buying large old properties and making apartment houses out of them. I've been working on a small scale because I do not know a great deal about the business.

"Charles is a sophomore at New Hampshire University, Durham, taking mechanical engineering, and Richard is a senior in high school. They are 18 and 16 years old, respectively. Both of them are about six feet tall and still growing. There seem to be no height limitations these days. As you know, I have authored three books during the last few years. I have been working on others lately, but the upset conditions do not put one in a writing mood, to say the least."

I am certainly most thankful to Jack Hanley for what he has done. Keep it up, Jack, and if you can get others to do the same with their courses, as I have said before, it would be greatly appreciated. Hope to see many of you at Class Day and at the Alumni Banquet on January 30. Let's have a large gathering of '18 men at that dinner. — GRETCHEN A. PALMER, Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

#### 1919

The Class held a dinner on September 24 at the Winthrop Hotel. The following were present: B. S. Coleman, M. C. Balfour, T. Sheddlovsky, N. A. Bond, K. F. Rodgers, Duke Herzog, and E. R. Smoley. The 25-year reunion was discussed, and it was decided to appoint a committee of 50 members to represent the country regionally. It was also decided to go ahead with the class biography, with each member being asked to write his own sketch. The organization for our reunion gift and biography and plans for the reunion will be put into effect in the very near future, and announcements will go to the Class shortly thereafter. In spite of the war emergency, the general consensus of opinion is to go ahead with these plans to the best of our ability.

The following changes of address were received from the Register of Former Students during the past month: Louis A. Brown, Jr., has moved from Charlottesville, Va., and his new address is Lights, Inc., 1111 South Fremont Avenue, Alhambra, Calif. George G. Fleming's address is 95 Elizabeth Street, Hartford, Conn. Freeman H. Horton has moved from Bradenton, Fla., to Jacksonville, with address of 409 West Adams Street. Maurice A. Michaels has moved from Riverdale-on-Hudson, N.Y., and now resides at 180 Walnut Street, Montclair, N.J. Carley H. Paulsen, 78 High Street, Hingham, Mass., is now a lieutenant commander.

Bernard S. Coleman was elected president of the board of the Weequahic Adult School in Newark, N.J. Bernard feels that

our reunion should be held in Boston over a week end and should be stag. — Marion Daniels acknowledged from Boston the mail sent her by your Secretary. — Paul W. Blye writes from New York: "I shall soon complete 24 years with the Bell System. At present I am transmission engineer in charge of a section of the transmission engineering department of the Bell Telephone Laboratories. We are now, of course, engaged in war activities. I am serving as a consultant to the National Defense Research Committee. I see Given, Schwartz, and Reynolds nearly every day. I am working very closely with Al Murray '18, who is a technical aide to the N.D.R.C. in Washington. I am married and have two children. Before Pearl Harbor, my hobbies were golf and fishing in summer, and bowling and philately in winter. Now I work all the time."

Ray H. Bartlett, who is vice-president of MacDonald Brothers, Inc., in charge of the Pittsburgh, Pa., office, writes as follows: "I have one son, an ensign in the Naval Air Corps, and one daughter at Albright College, Reading, Pa. I travel most of the time, covering from Cleveland and Pittsburgh to the eastern seacoast. My work is interesting and stimulating, as I survey about 125-150 different industrial plants each year." As to the reunion, he comments, "You fix it; I'll be there." — C. A. Chayne writes from Flint, Mich., and seems to be too busy to be much interested in our reunion plans. — Oscar de Lima has recently enlisted in the operations division of the Navy. — EUGENE R. SMOLEY, The Lummus Company, 420 Lexington Avenue, New York, N.Y. GEORGE W. MCCREERY, Assistant Secretary, 131 Clarendon Street, Boston, Mass.

#### 1920

We should like to give you detailed information about the location of classmates in the service, but both the War Department and Navy Department do not wish us to disclose details of military and naval mail addresses. The Review, therefore, has offered to act as a central forwarding station for mail to classmates in the service. We hope you will take advantage of this thoughtful co-operation.

We have the good news that Bill Hedlund of Summit, N.J., has been named president of the Elastic Stop Nut Corporation, with plant and offices in Union, N.J. Bill has been a director of the corporation and was formerly vice-president in charge of engineering at the Electrolux Corporation. He is widely known in legal and industrial circles as a patent authority.

Foster Doane has recently become associated with the Sandy Hill Iron and Brass Works, Hudson Falls, N.Y. He will be in charge of all inspection work for the company's big war production program. Foster was previously general superintendent of the Fort Edward mill of the International Paper Company. He is secretary and treasurer of the New York-Canadian Association and is a member of the executive council of the Empire State section of the Technical Association

1920 Continued

of the Pulp and Paper Industry. Foster has two sons, age 15 and 7.

Tony Anable has been commissioned a line officer in the Naval Reserve, with the rank of lieutenant commander. He left recently for active duty in an administrative capacity at the United States Naval Reserve Midshipman School in New York. — Ed Burdell is doing a fine job of training needed technical men. He is the director of the Cooper Union, which for nearly 83 years has occupied a unique place of usefulness in American education.

Roger B. Colton has been promoted from lieutenant colonel to colonel in the Signal Corps. Henry Dooley is now a lieutenant commander in the Navy and is at present located in Florida. Murray Whitaker has left Hamilton, Ohio, and is now in Hopewell, Va., at 2212 Pickett Street. Lyman Whitten is now a colonel in the Air Forces and is in Washington, D.C. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

## 1921

In keeping with wartime restrictions, publication of a service man's name and rank will be continued, but mention of his unit or ship will be omitted. Since these notes provide a means for you to start correspondence with each other, we have always endeavored to list available addresses, except in the case of those in the services. The staff of *The Review* has now offered to act as a central forwarding station for keeping you in touch with those in the armed forces. Letters sent directly to *The Review* will be forwarded to those in service for whom no addresses are listed here. Your Assistant Secretary adds the request that you send him any news you receive from these men so it can be shared with everybody. A special file of service records is being maintained, and you can help to keep it up to date.

Maxwell Murray, II, has been promoted from brigadier general and is the first of the Class to reach the rank of major general. — Joseph H. Carr, IV, and Franklin O. Carroll have been promoted to lieutenant colonels. In the Navy, Ralph S. McDowell, XIII-A, and William J. Malone, XIII-A, have been promoted to the rank of commander. — Howard L. Vickery, XIII-A, a rear admiral, who is vice-chairman of the United States Maritime Commission, was the guest speaker at a recent meeting of the Larchmont, N.Y., University Club. — James E. Baylies, II, a colonel in the Medical Corps, has been in charge of a large medical replacement center.

Dugald C. Jackson, Jr., VI-A, a major, has sent us an announcement of the marriage on September 12 of his eldest son, Dugald C. Jackson, III, '40, an ensign, to Vyole Tabet. The ceremony was performed at the Frankford Arsenal, where Dugie is stationed. Among those present were Franklin Mitchell, X, a colonel; Ralph M. Shaw, Jr., VI-A, and Mrs. Shaw and their daughter.

Paul H. Rutherford, VI-A, executive, engineer, and raconteur, is now in Detroit on the labor relations staff of Gen-

eral Motors and can be reached at the General Motors Building, 3044 West Grand Boulevard. Paul's family is still in Dayton where he has long been identified with the Delco Products division of General Motors, most recently as plant manager. Delco has been honored with the Army and Navy "E."

George W. Spaulding, VI, has been promoted to superintendent of power of the Pennsylvania Water and Power Company, Lexington Building, Baltimore, Md. Whit started with the Pennsylvania organization as test engineer in 1924, following association with the Plymouth Electric Light and Power Company and the Century Electric Company. Successively, he was assistant chief of tests, assistant to general superintendent in charge of power studies and system planning, and then assistant chief engineer co-ordinating engineering studies and construction activities. He is married and has two daughters. Sailing, fishing, bridge, and the presidency of the M.I.T. Association of Baltimore occupy what leisure time he can find.

John S. Cummings, VI, sends a most welcome letter and snapshot of his family trio, with the following comment mailed from 708 Porter Avenue, Wichita, Kansas: "Here is just a slight cracking of the wall of silence which I have permitted to surround me for the last few years. Of course, the most important events are represented by the two figures other than myself in the enclosed picture. I was married about three years ago to the former Pearl Middleton of Watertown, Mass., and Bruce arrived on January 30, 1941. He is the center of interest and takes care of most of my idle moments." Jack is temporarily in Kansas preparing an appraisal and depreciation study of an electric utility for Jackson and Moreland, with whom he has been associated for the past five years.

David O. Woodbury, VI-A, and S. Paul Johnston, II, are vying again for literary honors. The New York *Herald Tribune* book section has printed complimentary reviews of Paul's graphic history of the United States Army Air Forces, *Flying Squadrons*, published by Duell, Sloan and Pearce, New York, and of Dave's *What the Citizen Should Know about Submarine Warfare*, published by W. W. Norton and Company, New York. [See the November Review, page 16. Ed.] Paul has been editor of *Aviation*, director of co-ordination for the National Advisory Committee for Aeronautics, and is now a consultant on the staff of the Curtiss-Wright Aeronautical Corporation in Washington. He is a lieutenant commander in the Naval Reserve. Paul previously covered civilian and naval aeronautics in earlier volumes entitled *Horizons Unlimited* and *Flying Fleets*. — Dave will be remembered for the humorous "Goopapa" series he contributed to these columns many years ago as a member of General Electric's publicity staff. Until recently, he has been a prolific producer of novels, books such as *The Glass Giant of Palomar* and *The Colorado Conquest*, as well as numerous movie scenarios and stage plays. He also toured

the country delivering lectures. He served with the Navy in the last war and is now working in navy public relations.

We have the following new addresses: Douglass E. Brown, X, 365 West 27th Street, New York, N.Y.; George Dato, II, 116 Perham Street, West Roxbury, Mass.; C. Doane Greene, X, Canadian Kellogg Company, Ltd., 34 Adelaide Street, West, Toronto, Ont.; Wilburn H. Henderson, I, 3519 Tularosa Street, El Paso, Texas; Paul B. Hunter, II, 17 Primrose Street, Garden City, N.Y.; Harold H. Lockett, XV, 190 North Main Street, Middleboro, Mass.; Richard McKay, XV, 50 Victoria Circle, Newton Center, Mass.; Maurice Mason, X, 36 Campbell Avenue, Montreal, West, Quebec; Harold F. Stose, XIV, 3344 Gallatin Road, Toledo, Ohio.

Your Secretaries take this opportunity to express heartiest holiday greetings. Separated as we are — some far and near engaged directly in our national effort, others backing them up in the push for production — let us spare a moment to strengthen our strong mutual bond of interest and fellowship; to spread not only good cheer but also the conviction and firm resolve that we and our associates can and must accomplish the biggest assignment of our lives. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, Federal Telephone and Radio Corporation, 1000 Passaic Avenue, East Newark, N.J.

## 1923

I think *The Review* Office has been clearing out some old desk drawers, for they recently sent me a crop of clippings dated February and April of this year. One announced the appointment of William Webster as vice-president of the New England Power Association; another told that Daniel Sayre is head of a new department of aeronautical engineering at Princeton University, and a third said that Felipe E. Cadenas, a lieutenant, is a naval attaché to the Cuban embassy in Washington. As none of these items have been previously recorded here, if my memory serves me, they are acceptable, if a bit late, items of news.

The Boston office of naval officer procurement announced the commissioning on September 28 of Stanley S. Setchell as a lieutenant in the United States Naval Reserve. — The publishing of military and naval mail addresses is not currently desirable, but *The Review* has kindly offered to keep men in touch with one another by forwarding mail to military or naval addresses where known.

The executive committee of the Class is studying the possibility of a reunion. Alumni Day will be on January 30 — pretty early. Better plan to take in the Alumni Day Banquet, anyway, as, in case some of you do not recall, ours will be the 20-year Class. — HORATIO L. BOND, *Secretary*, 457 Washington Street, Braintree, Mass. JOHN M. KECK, *Assistant Secretary*, 207 Bloomfield Avenue, Bloomfield, N.J.

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## 1924

A news release from Brown University states that Bob Lindsay, a professor and Ph.D., is chairman of the physics department and is directing studies on acoustics as well as authoring a new elementary physics textbook.

From Harold Hazen, we have a note on Carlo Vicario, who visited the Institute recently. Carlo is manager of the pulp and paper division of the Nash Engineering Corporation in New York, is married, has two children, and as a hobby is a designer and builder of high-fidelity sound recording and reproducing outfits.

In the romance column: Clarence Redden is engaged to Virginia Dove of Wellesley; Albert Anderson married Elizabeth Volkoff, Metropolitan Opera baller artist; Emmons Blodgett married Helen C. Boswell of Pittsburgh.

Walter Kendall, Alumni Day Chairman for this year, reports plans progressing rapidly and a large attendance expected. Bob LeClercq, after many years in Africa and the Far East, is engaged in work for the mineral division of War Production Board. His family address continues to be 265 Hazel Avenue, Highland Park, Ill. — Malcolm Finley had his photograph and a long story in the San Francisco papers. He is head of the troubleshooting clinics of the school guidance program in San Francisco's school department. Lloyd Porter, according to the Travelers Insurance Company, is one of a group of five safety engineers who have visited many of this country's island outposts in the interest of accident prevention during the building of bases. Among their duties has been the formidable one of teaching natives to use machine tools safely and efficiently. One native, according to the story, was dispatched with a wheelbarrow to get some coils of rubber hose, a rope, and a pair of boots. He returned pushing the empty wheelbarrow and carrying the hose, rope, and boots — on his head. Must have taken some more teaching! — Addresses of men in the service may not be published, so *The Review* will undertake to forward mail to any members of the Class who are in the services. — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass.

## 1925

Ralph Gow of Worcester was the officer in charge of the S. A. Woods Machine Company in South Boston during the period that plant was under army control. As reported in *The Review* of last May, he is a major in the Ordnance Department. — In the Boston *Herald* of September 28 we read the following: "Mrs. Walter F. Luck of Williamsburg, Va., announces the marriage of her daughter Rena Burgess Luck to Lt.-Comdr. Arthur F. L. Morash of Cambridge . . . which took place on Sept. 11 in St. John's Episcopal Church in Richmond, Va."

The New York *Journal and American* of September 20 reports that Ernest L. Davis, vice-president and director of Brown,

Wheelock, Harris, Stevens, Inc., realtors, is a captain in the Corps of Engineers, United States Army. — On the occasion of a meeting of the Pittsburgh chapter of the Society for the Advancement of Management, the Pittsburgh *Press* recounted briefly the career of Joseph Manuele, who was the principal speaker. He went to work for the Westinghouse Electric and Manufacturing Company immediately after graduation. After being inspector of electrical equipment for a period, he was assigned to the headquarters inspection office in 1930. In 1940, he received his present appointment, that of director of quality control.

Last spring, the Chicago *Tribune* announced the approaching marriage of Howard Raftery to Margaret Pope Montgomery, a nurse. Raftery is a senior project planner in the Federal Housing Administration. Since the date of the wedding, although not definitely set at the time, was to be soon, we must assume that Howard is now among the benedicts. — I have at hand a note from the widow of Leonard Olson, giving an account of his career. Lack of space prevents giving it here, but I'll be glad to send the information to any friend of Olson's who is not acquainted with his activities between the time of his graduation from Course VI-A and his death of a heart attack on December 20, 1939.

In Geoff Robert's letter of August 8, which begins in the next paragraph, he states that he has not recently heard of Glen Bateman. The following memo from Charles E. Locke '96 supplies the missing news: "Glen L. Bateman, sales engineer for Edward L. Bateman, Ltd., Johannesburg, Transvaal, has been made a major in the South African Air Force. After seven and one-half months in Libya, he is now in command of a coastal squadron doing naval reconnaissance work."

In order to save room for the following very interesting letter from Geoff Roberts, I have had to curtail some of the other notes. I trust, however, that none of the classmates so slighted will object, as we receive one of these newsy communications from South Africa only about once a year. After thanking me for my letter and mentioning how seldom he hears from anyone in the United States, Geoff wrote as follows: "Sorry the censor made such a mess of my last letter. I can remember only a bitter diatribe against the Germans, a point of view I still hold, but I grant there is not much use in being bitter. I will attempt to stay out of official hot water this time by not mentioning anything that might have a bearing on the war."

"I get two American periodicals, *The Review* and the *New Yorker*. The June *Review* has come to hand. The latest *New Yorker* I have is the issue of June 20, which is good going. You mentioned that the world seems a small place today. The Swiss wife of a friend of mine recently spent a couple of weeks in a Johannesburg nursing home. A year or two before the war, her sister had gone from Switzerland to Teheran, Persia, to nurse in the Shah's household. While in the nursing home,

my friend's wife heard that a Persian prince had come to the place. She contrived a message in French and sent it in to his highness via one of the local nurses, who did not know a word of what she was repeating. It was the right prince, all right. He knew the lady's sister and sent back his greetings and the comment, 'Isn't the world a small place?'

"I remember Henry Sachs. I came in contact with him through the M.I.T. Outing Club. I retain an interest in the various activities the Outing Club sought to encourage, such as riding, hiking, and winter sports. Winter sports are out of bounds in Johannesburg, unfortunately, but they are popular in the Cape and in the Drakensberg Mountains in Natal. I still do a good deal of hiking, and ride a bit, if there happen to be horses, wherever I am spending my leave. The only Technology man I have heard from recently is Clifton McFarland '26. We worked together in Pittsburgh and have corresponded intermittently since. He has landed a magnificent job as a naval attaché at the London Embassy. He flew to Lisbon and was first stationed in Ireland. He has now moved to Scotland and has been touring all over the country. I have a very soft spot for the Scotch. Someday, in happier times, I hope that I may have the opportunity of visiting their country. McFarland says that Scotland reminds him of New England, except that most of the houses are built of stone and there are fewer trees. The main highways are not so good as those in America, but the secondary roads are much better."

"I have heard no news of Glen Bateman recently. I know his father slightly and will write him a few lines. If he has any news to offer, I will be more than glad to send it on to you. The American community in Johannesburg celebrated July 4 this year with more than usual gusto. A picnic was organized at one of the public parks, and about 275 persons, including many children, turned up. The principal item on the program was a baseball game. I thought they would probably be short of players, so I volunteered for one of the teams, though about the last time I had a mitt on was when I was a student at the Emerson Grammar School in Berkeley, Calif. As it turned out, there were about six complete baseball teams, so I only played a few innings. I got a couple of hits, anyway, and made one put-out. I forget what the final score was, something like 23 to 16."

"I recently saw an extremely interesting film dealing with the construction of Boulder Dam. It was shown at Kelvin House, the headquarters of the various engineering societies in Johannesburg. The hall was packed, and about a third of those present were women — quite a gala occasion all around. The film was simply fantastic. I had no idea of the scale of the undertaking. When they showed a 30-foot diameter section of penstock trundling down a road on a 200-ton capacity trailer, with a tractor hanging on behind to keep it from running away, it looked so funny that everyone burst out laughing. I take my hat off to those who conceived this

1925 Continued

project and to the engineers who carried it out.

"There are herds of elephant in the Albert Park in the Congo which are quite capable of crushing a motorcar. Many travelers there stay at monasteries and are hospitably received. One of the roads is too narrow for cars to pass each other. For miles along this road, natives are stationed at intervals. Each is equipped with an empty paraffin tin. When a motorist approaches, a signal is passed down the road from native to native. If the road is clear, another signal is returned to the starting point, and the motorist may enter. Incidentally, it is a weird experience to hear these native drums in action. It might sound laughable in a romantic novel, but in reality it makes the hair stand up on the back of your neck. There may be 20 or more drums together, ranging in size from a few inches in diameter to the size of a 45-gallon oil drum. One moment the sound may die away to a whisper; the next moment, the whole vault of heaven seems to be reverberating. Similarly, at one moment the rhythm is as slow and inevitable as the approach of doom; at another moment it is galloping away in breathless flight.

"By the bye, if you're interested in fishing, Kenya is one of the three superlative fishing areas in the whole world. (I do not know what the other two are.) Anyway, the fish in Kenya are more immense than any fisherman ever dreamed in his wildest dreams. They fight like tigers, too, but they relax in the frying pan, and are so delicious when cooked that I can see the mouth of that gourmet over there watering right now." — HOLLIS F. WARE, *General Secretary*, 3 Aquavia Road, Medford, Mass. F. LEROY FOSTER, *Assistant Secretary*, Room 7-121, M.I.T., Cambridge, Mass.

## 1926

Edward J. McGrew is now a lieutenant colonel. — Charlie Poore now has the very elegant address of 1320 Biarritz Drive, Normandy Isle, Miami Beach, Fla. — Reginald Macauley has moved from Pennsylvania to 206 Mill Street, Newtonville, Mass. — Wesley M. White has joined the large group of '26 men living in Wellesley. His address is 21 Parker Road. — JAMES R. KILLIAN, JR., *General Secretary*, Room 3-208, M.I.T., Cambridge.

## 1930

Our contribution of men to the armed services has been bolstered by the following: John Senter, II, Josiah Child, IV, and Webster Fisher, X-A — captains; Bob Poisson, XV, a lieutenant in the Navy; and Larry Gonzalez, I, Paul Kimberlin, II, Foster Kennedy, IV, Dave Stanley, VII, Jesse Billings, XIV, Bob Sealy, XV, Bill Selden, XV, Jack Lovejoy, XVII, and Tom McManus — all army lieutenants. Several of our classmates who have been in the service for some time have received promotions. Warren Martell and Hal Spaans, XV, are now majors, and Bill Eaton, I, is a captain.

The first '30 man to meet death in the war is Olcott Payson, XV, who was a lieutenant in the North Atlantic Ferrying Command. He was killed on June 17. A wife and two sons survive him. Ollie was an experienced airman, having served as vice-president of Skyways, Inc., of Boston, later as manager of the Portland, Maine, airport, and as general manager of Thomas Laughlin Company of Portland.

Morris Shaffer, VII, is now serving as senior bacteriologist at the Massachusetts Antitoxin and Vaccine Laboratory, after spending four years at the Squibb Institute for Medical Research in New Jersey. — Leo O'Neill, III, is in Peru on official business for the Board of Economic Warfare. Bob Crowell, XV, is working in the aircraft division of the Armstrong Cork Company in Lancaster, Pa. — Tul Houston, XVII, is in the news twice. First, he is engaged to Althea Ritscher of Montclair, N.J. Secondly, he is a member of the newly created firm of Houston and Hill, specializing in industrial real estate.

Frank Hankins, XVI, is at Miami training engine mechanics for the Pan American air ferries. Norwood Kenney, VI, is now living in Hingham with his wife and their three children. Ken is mighty busy these days touring the country for the Simplex Wire and Cable Company. Phil Holt, X, is doing a great job as Class Agent for the Alumni Fund and has boosted '30 in the class standings, but he needs the support of us all if he is to put our Class at or near the head of the list. — PARKER H. STARRATT, *General Secretary*, 1 Bradley Park Drive, Hingham, Mass.

## 1931

Much of our news is about men in the armed forces. Because of government wartime restrictions, we cannot list their units or locations. Those of you who wish to keep in touch with men in the Army and Navy, but do not know their correct addresses, may send letters to The Review to be forwarded.

Art Lutz writes as follows: "Since I left college, I have been working with lumber. My work in recent years was as vice-president in charge of sales, purchasing, and accounting for the Lutz Lumber and Moulding Corporation in Brooklyn. In April, 1941, I was called from the Officers' Reserve Corps to active duty as a captain in the Ordnance Department in Washington. My duties have been in connection with the new small arms ammunition plants which the government has undertaken in the Midwest. In April, 1942, I was promoted to the rank of major. The work is interesting and vast. Of course there is constant pressure to get things done as quickly as possible, for every effort speeded up now may mean much less for us to overcome later." Arthur's address is 2414 Pennsylvania Avenue, Northwest, Washington, D.C. Many thanks to you, Arthur, for your letter. It is the first I received from a classmate in the service.

We received a letter from Bob Wilson, who is a lieutenant at the Army flying

school in Lubbock, Texas. He has been there since June as a ground officer in the Air Corps. Bob was married just before he entered the Air Corps, and he and Mrs. Wilson are living in Lubbock. We're sorry not to have the details on his wedding. Maybe we'll be able to gather the information from some of you readers. Bob's address is Army Flying School, Lubbock, Texas. According to Bob, Shel Smith is also in the Army. Sheldon and Bob were managers of Sears, Roebuck and Company stores in Newport, R.I., and Fall River, Mass., respectively.

The following is an excerpt from a letter written by John L. Dodson, a major, to Ralph T. Jope, Treasurer of the Alumni Association: "After mustering out of the Civilian Conservation Corps service as a first lieutenant in 1937, I went to work for the Barrett Company in Philadelphia. I had a good position and was climbing up the ladder until February, 1941, when I was ordered to active duty as a captain at Fort Monroe, Va. On last December 15 I was ordered to foreign service. I left my wife and two sons in Merrimac, Mass. On May 14 our third son, Stephen Clark, was born, and as yet I have not seen him. I was promoted to the rank of major in July. I have run into numerous Technology men, including Bill Spahr and Paul M. Phillips '22, a lieutenant colonel. I should say we are well represented in the Ordnance, Signal Corps, Coast Artillery, and Air Corps."

From the headquarters of the First Naval District in Boston we learn that Ralph Davis and Arthur Nisula are lieutenants doing ordnance work in the Navy. Ralph was with Fairfield and Ellis in Boston, while Arthur was with the Bethlehem Shipbuilding Corporation, Fore River works, in Quincy. Ralph's home address is 102 Connett Place, South Orange, N.J., and Arthur's is 230 Ward Street, Hingham, Mass. — Bob Backus is also a lieutenant in the Navy. Since 1938, Bob had been in the Massachusetts State Legislature as representative from Nantucket. He served as clerk of the ways and means committee. Bob was also chairman of the board of selectmen in Nantucket. Upon being sworn into the Navy, he was assigned to deck duties with the fleet.

Everett Swift is now a captain in the Ordnance Department. He was called to active duty as a second lieutenant in April, 1941, and was promoted to the rank of first lieutenant in November, 1941. After serving for a while at Camp Edwards, he was sent to Aberdeen Proving Ground, where he has been ever since. Mrs. Swift and their two children are in Aberdeen with him. Prior to entering the service, Everett was with the United States Envelope Company's engineering department in Worcester. — From Fort Devens we hear about Jack Allia as follows: "Captain Domenico J. Allia of 22 Revere Street, Lexington, post signal officer . . . for two years, has been ordered 'elsewhere.'" In civilian life Captain Allia was a fire-alarm engineer.

On April 27, Gilbert Morgan Roddy, a captain, was married to Frances Kellogg Newbury, daughter of Mr. and Mrs.

*Come back to Tech — Saturday, January 30 — Annual Alumni Banquet and Class Day Exercises*



1931 Continued

Egbert Newbury of Bozeman, Mont. The bride, who lived in Concord, Mass., and Gil, who is in the Ordnance Department of the Army in Boston, flew to Montana for the wedding. They are making their home in Cambridge. — This summer, Charlotte Arline Wellman was married to Frederick E. Brooks, Jr. Fred is now with the War Department. — In August, Mary Beston Fullerton, daughter of Mr. and Mrs. James P. Fullerton of Beverly Cove, Mass., was married to J. Jerome Oleksiw, an army captain. On July 11, Mr. and Mrs. James Picker of Larchmont, N.Y., announced the engagement of their daughter, Dr. Myrtle Picker, to Leon A. Kolker. Leon is president of the Elko Chemical Works, Inc.

Edward Harrington is working for the H. E. Fletcher Company in West Chelmsford, Mass. — The Register of Former Students requests information on the whereabouts of Walker W. Holler, an army captain, and George V. Kropp. Can you supply their addresses? — BENJAMIN W. STEVERMAN, *General Secretary*, 9 Graham Terrace, West Roxbury, Mass.

## 1932

Your Secretary talked with our President, Don Gilman, in Chicago recently. He is very busy taking care of work left by men who have entered the armed services. Don had no news to pass on. This is typical of the situation this month. We should all be particularly interested in hearing from those of you who have joined up. While military secrets present a problem, there must be plenty of items of interest that you could contribute to this column.

Robert D. Butler, who was a geologist for the London Mines and Milling Company at Alma, Colo., last summer is now with the metals and minerals division of the Board of Economic Warfare, Washington, D.C. His address is 215 George Mason Road, Falls Church, Va. — Edward L. Francis has become a partner in the firm of Douglass and Hunneman of Boston. He is in charge of the division of property management.

Walter C. Voss, chairman of the technical committee of the Massachusetts Committee on Public Safety, had just been telling a group of air wardens that persons at public gatherings should stay in their seats and not become excited when an alarm sounds, when an alarm sounded. At once all the wardens rushed for the doors. This incident was the subject of an amusing write-up in the *Boston Post* of September 24.

Have you sent your check to the Alumni Fund? At the same time include some news of yourself and of any of the fellows you have seen recently. — CLARENCE M. CHASE, JR., *General Secretary*, 1207 West 7th Street, Plainfield, N.J. *Assistant Secretaries*: CARROLL L. WILSON, Research Corporation, 137 Newbury Street, Boston, Mass.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

## 1937

The Review has recently announced a new service for those in the armed forces

who want to contact comrades in arms, or for those few of us who are still civilians and who want to write to those in uniform. The Review will act as a forwarding agent for letters to men in the services. We hope you fellows will take advantage of the opportunity.

On Saturday, October 3, Alice and I attended what seemed to be an M.I.T. wedding. Edward Maples and Cornelia Adams were married with the aid of three Technology ushers and various Technology kibitzers like myself. The ushers were Rolf Schneider, Al Faatz, and Dave Fulton. Others present were James Warburton, Jr., and Nestor Sabi. — In July, Conover Fitch and Priscilla Vickery Hall were married in Nahant. This wedding also had a Tech flavor, since Conover had the following ushers: Peter de Florez, August Schilling, and Carson Febiger. Conover is in the civil engineering corps of the Naval Reserve.

In February, Gil Hunt was at Fort Belvoir. Phil Dreissgacker pokes his head up from Camp Stewart, Ga., where as a first lieutenant he reveals that: "It's been a long time since I've had contact with '37 news, so I'll try and dig up some myself. Bill Chandler is the proud papa of Susan Louise, born in September in Vinita, Okla. John Gander was recently made a captain at the Aberdeen Proving Ground. Before I went into the Army, I met Cleon Dodge on reunion night in Buffalo, and I met Don Cole '40 at Camp Davis, N.C., in July. I've been in the Army since July 1, having been drafted from the Farrel-Birmingham Company, Buffalo, N.Y., and I like it very much." Thanks Phil. — Bakarian, a first lieutenant, reported from the Air Corps at Wright Field. — That just about drains me of news, fellows. Hope to have more next time. — WINTHROP A. JOHNS, *General Secretary*, Route 1, Bellemead, N.J. PHILIP H. PETERS, *Assistant Secretary*, 10 Babson Park Avenue, Wellesley Hills, Mass.

## 1938

News from San Diego tells of the marriage of Frank Kearny on October 2. The new Mrs. Kearny was formerly Mary Frances Igo of Shreveport, La. Adam Gambel, the other half of that Louisiana pair before Kearny was married, is stationed in New York. Being the shortest guy in his outfit, he is the last one to get at the chow. However, he doesn't seem to be losing any weight. News of other boys in the service informs us that Jack Robbins has recently finished training at Randolph Field. Ira Lohman, also in Texas, is still located at Camp Wallace. Harry Saunders is now a telephone expert with the Signal Corps.

Fred Forman, also in the Army, was married to Janet Ray on October 17 in Washington. Arch Copeland married Jo Ann Hausman of Mentor, Ohio, last June. They are living in Painesville, Ohio. Lyn Crawford was married early in September to Victoria Dorothy Baylis of New York. Lyn is with the Newport News Shipbuilding and Drydock Company. — Phil Sellers also joined the

ranks on September 19 in Brooklyn. Anita Hope Hamilton was the bride. She was graduated from Smith College in 1940. Johnny Wheale was best man, and Jack Wilson and Art Gould were ushers. Phil is with the Wright Aeronautical Corporation and is now living in Hackensack, N.J. Incidentally, Johnny, Jack, and Art are all in the Army. — Wheale is in the West Hartford branch of the Springfield Ordnance District, and Gould is at the Springfield Armory.

Reports from way back in May tell of the marriage of Hugh Christison, X, to Grace Powell, a New York style designer. Blake Reynolds was married on August 22 to Sarah Sargeant in Nutley, N.J. Blake is with the Lawrence Engineering and Research Corporation in Linden, N.J. The couple are living in Montclair. — Louis Bradford, a lieutenant in the Navy, was married in July to Eugenie Rowe of New York. The bride was graduated from Bennington College in 1939. Louis is stationed in the South.

Reports of engagements include that of Lucy Dunham, who attended the University of Cincinnati, to Dud Levick. Dud is with Procter and Gamble Defense Corporation in Milan, Tenn. Last spring, Dave Sargent became engaged to Marjorie Coughlan of East Orange, N.J. Ross Cooper is engaged to Janet Shay of Norwalk, Conn. In August, Lewis Allen, who is with Pan American Airways, was married to Barbara Elliott of Bronxville, N.Y.

Carl Feiss, who received his master's degree in City Planning with our Class, has recently been appointed planning director for the city of Denver, Colo. — Bill Gibson is still at the American Embassy in Rio de Janeiro. He writes: "Rio is still the garden spot of the universe, in spite of the fact that the operation of all passenger cars is prohibited, since enough gas couldn't be saved by rationing. The busses are full and the taxis hard to get, but nobody minds if you are late, and we have a couple of station wagons to get us to the embassy and back. The war would have increased the pressure on us if that had been possible, but we were 'all out' before. My work is very interesting, still helping to set and distribute allocations of scarce material to the Brazilian economy. I've been appointed a vice-consul, but I'm still doing plenty of engineering." Bill says further that he has been doing a great deal of sailing and can sail circles around Dick Young's *Black Arrow*. How about it, Dick?

Remember that fifth-reunion plans are developing for the week end of January 30. We'll have a definite announcement for you soon. — DALE F. MORGAN, *General Secretary*, 142 Woodland Avenue, New Rochelle, N.Y. RICHARD MUTHER, *Assistant Secretary*, Room 1-180, M.I.T., Cambridge, Mass.

## 1942

Reconnaissance scouts report Elliott Friedman with the Federal Telegraph Company in Newark; Milton Kaplow at the United States Custom House, Philadelphia; Lin Adams in Lynn, Mass.;

1942 Continued

Adolph Bertsch's address as Box 582, Trona, Calif.; John Clark at Stanford University; Edward Wing with Metcalf and Eddy, Wilmington, N.C.; John Liberman right close to the old stamping grounds at 450 Beacon Street, Boston; Frank McClintock at the M.I.T. Graduate House; and more new faces under blue or khaki hats.

The first private on record is Bill Vannah, who can be reached through an army post office. Ismael Nunez, XVI, is now a captain with the Argentine Army Purchasing Commission, 1775 Broadway, New York City. Jose Santos, XIII-A, a lieutenant, can be written to at R. Jardin Botanico 221, Rio de Janeiro, Brazil. A few of the ensigns have been tracked down temporarily: Cutler Jones is in Washington; Dan Robbins can be reached at Belle Harbor, N.Y.; Ray Shrewsbury is in Drexel Hill, Pa.; and Charles Wilding-White can be addressed at Worcester, Mass. Word has reached us concerning several army lieutenants. Dick Heldenfels and Dick Gillooly are still at Wright Field, Dayton, while Jack Arend, apparently moving around by plane, is with the Army Air Forces at Columbia, S.C. Jack Whelan and Bill Kellogg are in the Chemical Warfare Service in Camp Sibert, Gadsden, Ala. Peter Volanakis is at the Holabird Quartermaster Motor Base in Baltimore, Md., and Bill Strong is at Fort Revere, Hull, Mass. Edgar Wise is with the engineers in the Army's amphibian troops. Robert Krucklin, who is with an engineering battalion, can be reached through an army post office.

John O'Connor, also an overseas army engineer, has picked for his lucky fiancée Anne McCarthy of Belmont. Bob Evans, one of a long list of Beta Theta Pi bridegrooms, was married to Adelaide Roberts in Nashville, Tenn. Earle Foote was best man, and several other Technology men were present. The new address is Clifton Boulevard, Lakewood, Ohio, according to the gossip mongers. N. J. Grant has married Anne Phillips, and they plan to live in Cambridge, Mass. Even Frank Seeley is attempting to settle down, insofar as the Navy allows, with Edith Alexander. Freddy Gander, with fraternity brother Tom Saathoff taking care of the ring, married Hazel Craig, spent a brief honeymoon in New York City, and was last heard from in San Francisco in his official capacity as an ensign in the Naval Reserve.

Albert Hayes, formerly in the Radiation Laboratory at M.I.T., is now doing research work in the physics department of the University of California. George Spies, Jr., is a lieutenant with Uncle Sam's O.D. troops, and Moe Steinberg is in Greenville, N.C.

News from the Boston-Cambridge front, as gathered and edited by the lesser

half of this two-man combination, is rather meager at this date. First comes a word about your modest Secretary, Fred Baumann. Fred is now a lieutenant at Camp Crowder, Mo. He has just informed me by carrier pigeon that he has passed his physical examination and is soon to enter pilot training in the Army Air Forces. Barney Ring, an ensign, has been seen navigating to and from, and sometimes circumnavigating, his tried and proved Boston haunts. Bill Rote is a lieutenant with the Coast Artillery and is now taking special courses at Harvard. Bill was recently promoted to the rank of first lieutenant.

Charles Gottlieb Stempf, better known as Gangrenous, is still floating around Westchester County in his usual state of duress, while he awaits orders from the Navy concerning active duty and such. Incidentally, Charley tried his hand at reducing this summer, and the results were most gratifying. He claims he lived on boiled eggs and watermelon for two months. — We saw William 'Sleazy' Van Nostrand a few weeks ago. Bill, an ensign, is now going to school at Dartmouth and can be reached at the following address: New Hampshire Hall, U.S.N.T.S., Dartmouth College, Hanover, N.H. — Marsh McGuire, also an ensign has returned to Technology for a few special courses, and he can be reached at the Graduate House. Earle Foote, after a few brief months in industry, found it healthier to return to M.I.T. and is now working for the Department of Mechanical Engineering.

Monroe Sadler was back at Technology early in the summer doing graduate work, but he eventually found his calling as an ensign in the Navy. Just where he is and what he is doing we don't know, but there was a story around Tech that he is on a P.T. boat. We do know, however, that Phil O'Neil, also an ensign, after a summer of conditioning at Notre Dame was finally able to crawl through a conning tower and is now on a submarine, possibly in one. Prexy Joe Coe took time off from General Electric long enough to drop back to the Institute early in October. He is one of the few who have not yet married — at least he did not look married. Bull Christison is back at school and is giving Boston night life a break again.

Our special correspondent in East Hartford, Conn., Heine Shaw, who is slaving for Hamilton Standard Propellers, has dispensed with some dope on Course XVI, which runs along somewhat like that which follows. Johnnie Reed and Ron Shainin are in Miami dodging bathing beauties and working for Pan American as a side line. Word has it that Shainin has received his passport, so that we can expect him to head for Peru or Tobruk,

or some such place, one of these days. Pete Sibley is also in Miami working for Pan American Air Ferries, Inc. No one, including Pete, seems to know when he leaves for abroad. Jess Van Wickel and George Toumanoff work for Lockheed. Toumey states that he can sure see the benefits of an M.I.T. training (plug), for in his wind tunnel work he is forging far ahead of the graduates of other schools. He also adds that the girl situation in Los Angeles is deplorable. The girls start going steady at 12 years of age and are married at 16. The only solution is to catch one young and bring her up.

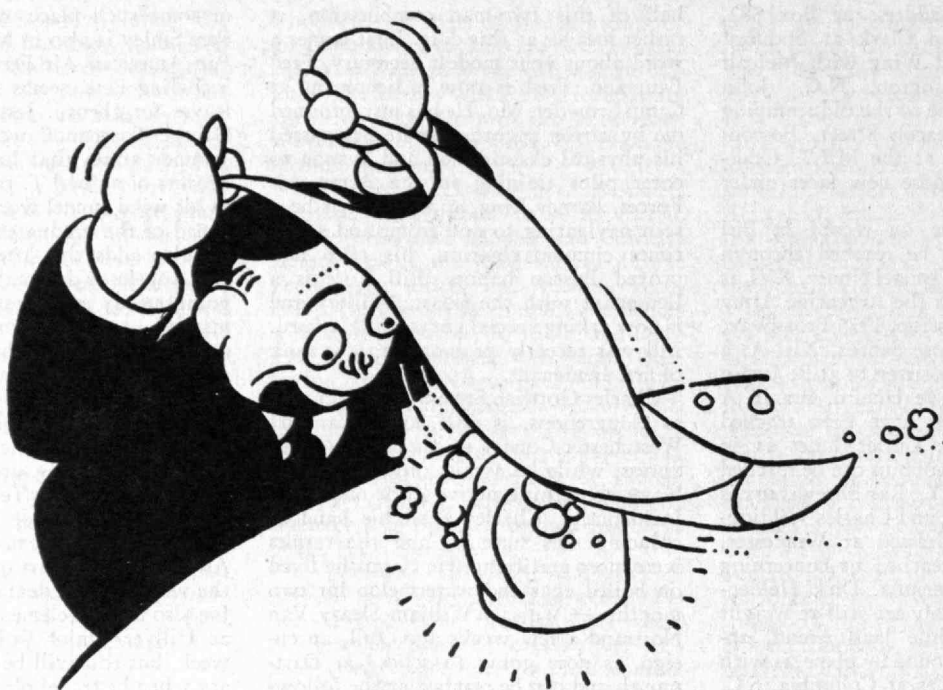
Jake Shaw and Bran Smith are still blowing around the Wright Brothers Memorial Wind Tunnel in the capacity of employees of the United Aircraft Corporation. They are in the research group and will be at Technology until the first of the year. Joe Grandfield of the same group is at the main office of United Aircraft at East Hartford, Conn. He likes the work a great deal and is doing well. Joe also teaches elementary aerodynamics at Hillyer Junior College one night a week, but this will be cut short in January when he trades places with Shaw and Smith. Ed Holland and his wife have settled in Seattle, Wash. Ed is doing stress-analysis work for the Boeing Aircraft Company. Obie O'Brien is a lieutenant in the Ordnance Department. He is now overseas.

Frank DiSalvo, according to a professional society publication, is working for Noordwyn Aviation, Ltd., in Canada. Walt Ochsner is working with Heine Shaw for Hamilton Standard Propellers, East Hartford, Conn.

Perhaps some of you people are wondering why we have not been more explicit in giving the exact locations or addresses of certain members of the Class now in uniform. The story is that government regulations prevent the publication of many military and naval addresses. The Review staff has offered to act as a central forwarding agency for those wishing to send mail to classmates in the services. It is therefore possible to reach all members of the Class through The Review editors, who are ready to go to work to send your letters along.

So time marches or staggers on, as the case may be, and with it more and more '42 men are plugging along with Uncle Sam's forces. Let's hear from the rest of you lads, where you are, what kind of beautiful creatures there are on Guadalcanal, what kind of sea breezes they make in Madagascar, and what kind of cola is the favorite in Libya. How about that now? — **FREDERICK W. BAUMANN, JR., General Secretary, Orchard Lane, Golf, Ill. KARL E. WENK, JR., Assistant Secretary, The Graduate House, M.I.T., Cambridge, Mass.**





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*Saturday, January 30, 1943*



# War on *Wear!*

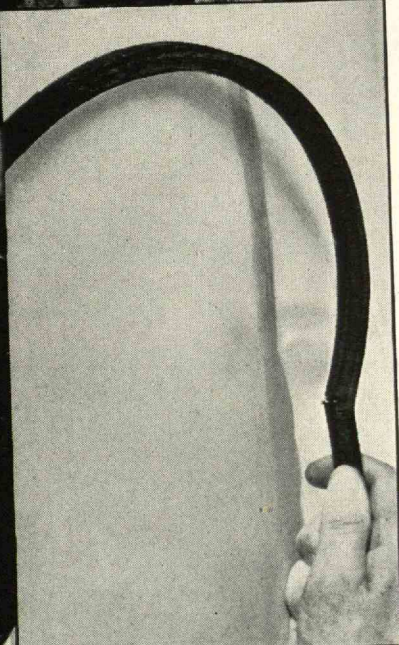
## MANHATTAN'S Suggestions for the Care of V-BELTS

Rubber has so many essential applications in the war production program that scarcity must be overcome by conservation in every way possible.

Making V-Belts last longer is more than common sense; it is a patriotic contribution to the "winning-power" of the country. Follow these important suggestions:—

1. Do not allow oil, grease or gasoline to come in contact with belt.
2. Avoid exposing belts to sunlight and excessively hot or cold weather.
3. Provide take-up facilities.
4. Don't leave tools or other objects near belt to get caught in drive.
5. Avoid abrasion on nearby objects.
6. Do not force belts onto sheave with instruments of any kind. Slack off on take-up and place belts into grooves.
7. Work belts around grooves until all of the slack is on ONE SIDE OF THE DRIVE, then tighten take-up until belts are fairly snug.
8. Before starting check pulley alignment, check bearings for oil and see that drive is clear and free. Adjust take-up so that when drive is operating at full load and full speed, only a slight bow appears on slack side. Vertical drives, extremely short center drives, and drives carrying pulsating loads must be operated tighter than others.
9. Use sufficient number of correct sized belts to handle maximum load. Be sure sheaves are over accepted minimum diameters.
10. Design new drive to take standard belt and sheave sizes.
11. Belts must not bottom in grooves. Bottoming causes belt-destroying heat from slip.
12. Do not use belt dressing. If belts slip, clean with cloth dampened in gasoline and tighten drive slightly.
13. See that sheave grooves are free from burrs and extreme wear. Replace worn sheaves and check alignment periodically.
14. On failure of first belt on a drive, replace entire set with new belts, keeping worn belts as spares for subsequent failures.
15. Store belts uncoiled and hung over forms on rack or wall in a cool, dark place.
16. Consult your MANHATTAN service man. Write factory or your distributor.

You can get reprints of these suggestions for maintenance men from MANHATTAN field representatives or distributors or by writing direct. This is No. 3 of a series on rubber conservation. Wall cards on care of belts and hose are also available.



*V-Belt destroyed by insufficient tension. High slip created excessive heat which wore and cracked cover.*

KEEP AHEAD WITH



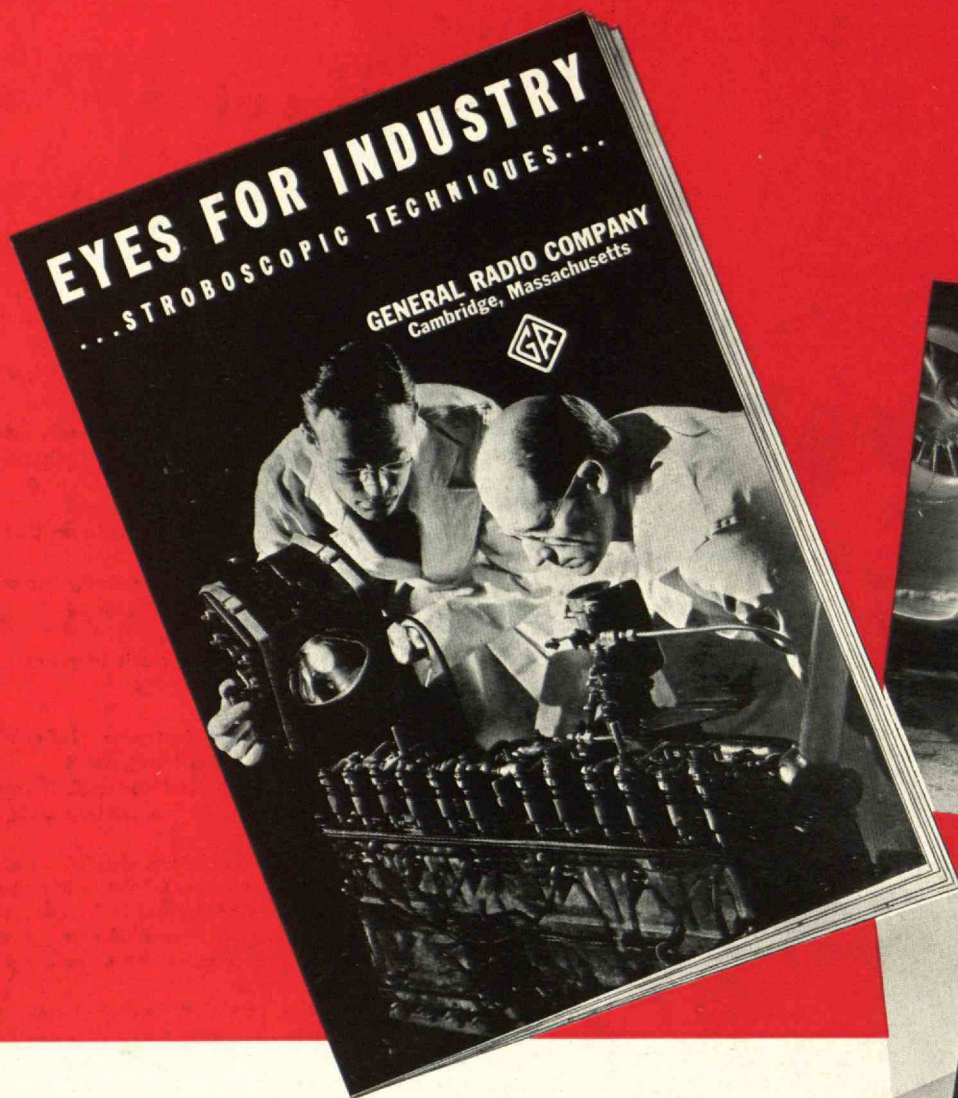
Thomas H. Boyd, '23  
Charles P. McHugh, '26  
Albert W. Beucker, '40

Wilder E. Perkins, '25  
Daniel J. Hanlon, '37

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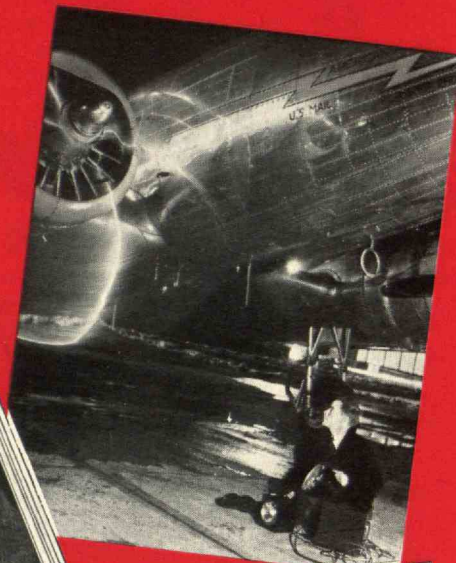
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*Eyes for Industry* contains a clear explanation of how the General Radio Strobotac and Strobolux work; what they will do; slow motion observation; speed measurements and stroboscopic photography. Included are numerous examples of how industry has used them to improve design, speed production and to solve unusual research problems.

This information should be helpful to research, design, production and maintenance engineers, especially those who use stroboscopes to attain or maintain war production standards. Write for Bulletin No. 809.

Because all our facilities are devoted to war projects, this equipment is at present available only for war work.



Typical of the 36 illustrations in the Bulletin.



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